MAY 6, 1933

Railway Age

Founded In 1856

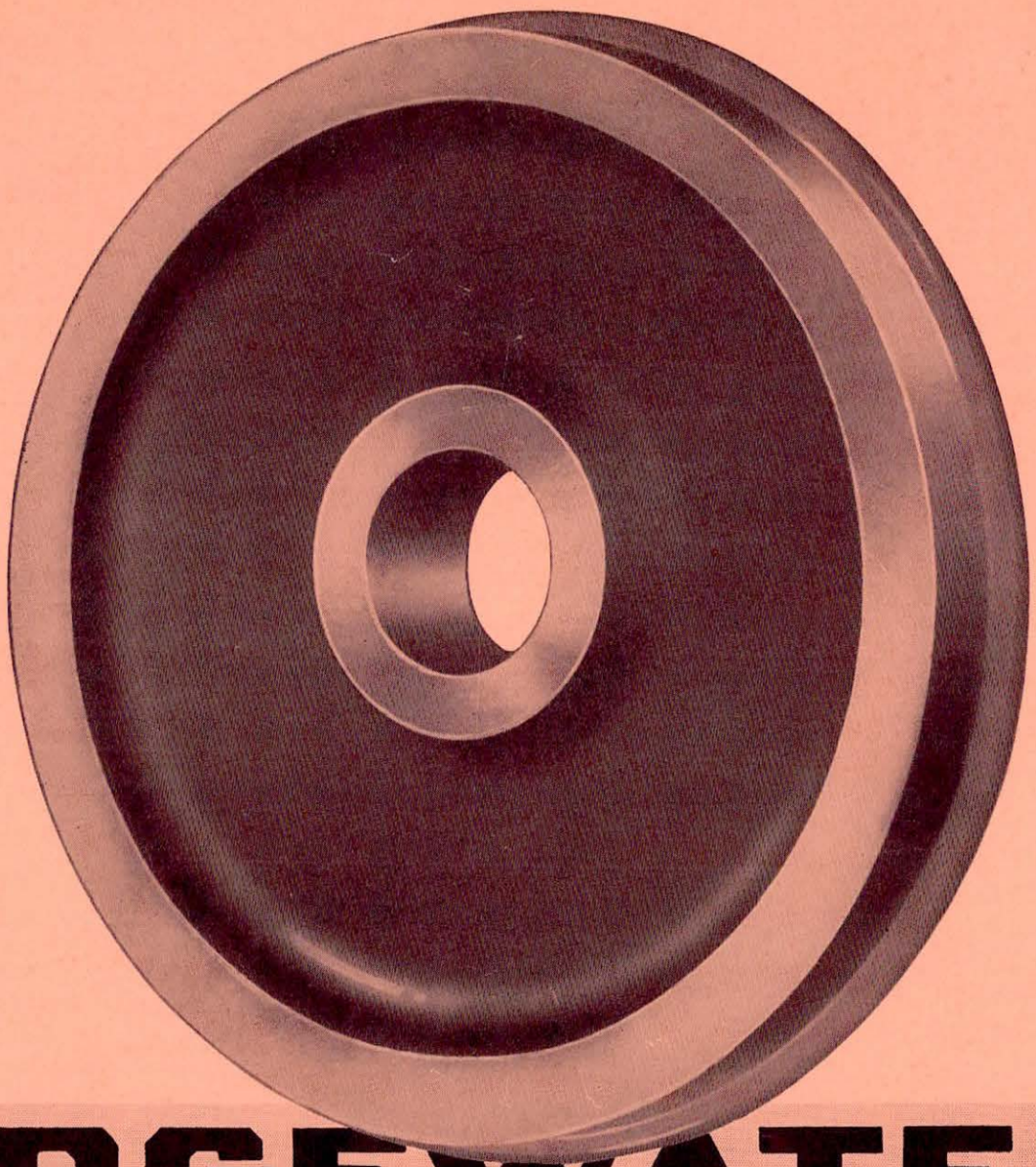
GENEVA C... LIBRARY
NO.
BEAVER FALLS, PA.

Railway Supply Companies, Research Laboratories of the Railway Industry

MERCHANTS, industrialists, shippers, politicians and even the National Transportation Committee, have criticized the railroads for lack of research.

This unjust criticism has gained wide acceptance because those who have made the criticism, or have accepted it and passed it along, have not considered all the facts.

The railroads have done and are doing much research work for themselves, but what many of those who discuss this subject do not know is that the railroad industry actually is divisible into two parts — the railroads themselves, and the railway equipment and supply manufacturing industry — and that almost every manufacturing plant is a research plant for the railways.



EDGEWATER

ROLLED STEEL WHEELS

E

LOCOMOTIVE & CAR WHEEL TIRES

EDGEWATER STEEL COMPANY · PITTSBURGH, PENNA.

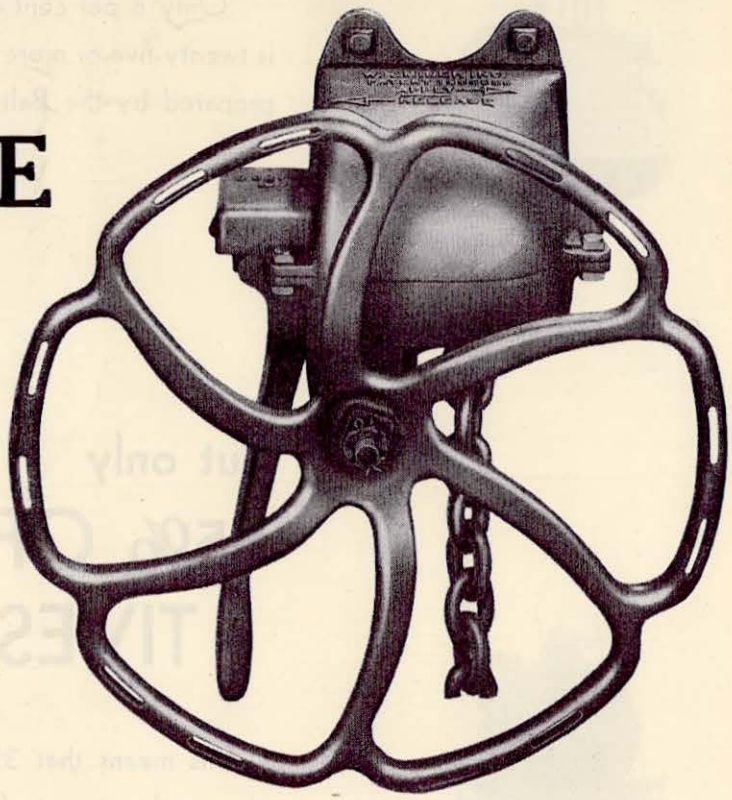
SALES OFFICES

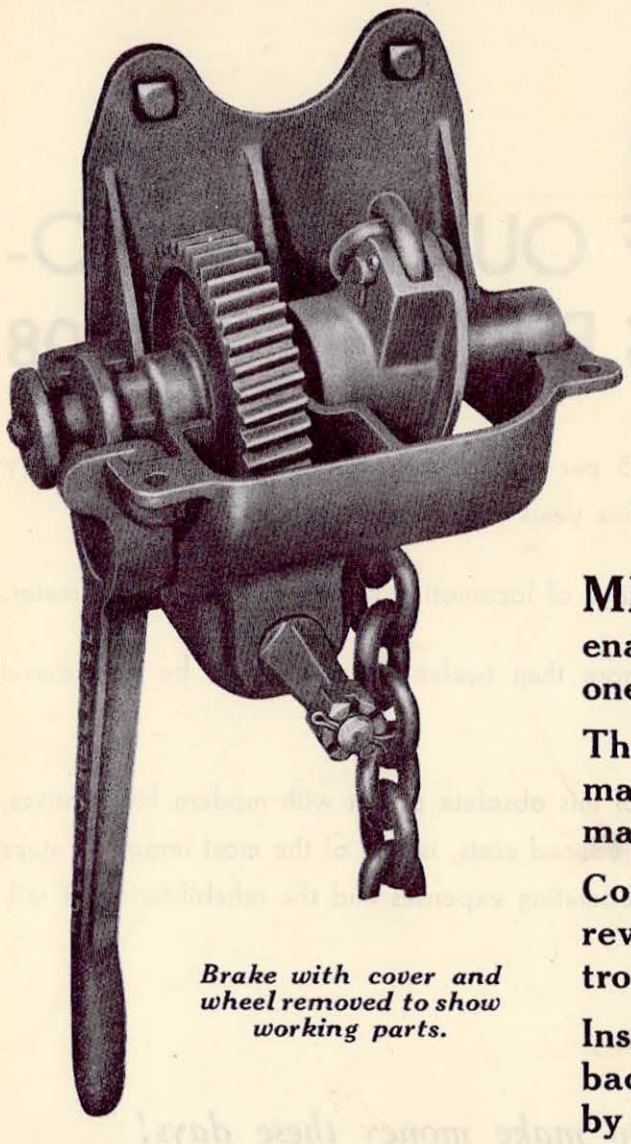
Atlanta, Ga. Baltimore, Md. Boston, Mass. Chicago, Ill. Louisville, Ky. Philadelphia, Pa. Portland, Ore. San Francisco, Cal.
St. Louis, Mo. St. Paul, Minn. Seattle, Wash. Washington, D. C. New York, N. Y.

Published weekly by Simmons-Boardman Publishing Company, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879.

MINER

POWER HAND BRAKE





Brake with cover and wheel removed to show working parts.

MINER POWER HAND BRAKES enable trainmen to develop easily and with one hand any required brake shoe pressure.

There is no pawl or ratchet for the brakeman to manipulate—loads are held automatically by the brake itself.

Complete or partial release is obtained by reversing the wheel, ensuring absolute control of car movements.

Instant and full release, without recoil or backward spin of the hand wheel, is effected by pulling the release handle.

These unique operating and safety features make the *Miner Power Brake* the best device ever produced for safe and controlled handling of freight equipment in switching movements.

W. H. MINER, INC., CHICAGO

"92% OF OUR SHIPS BUILT SINCE 1908"

8%

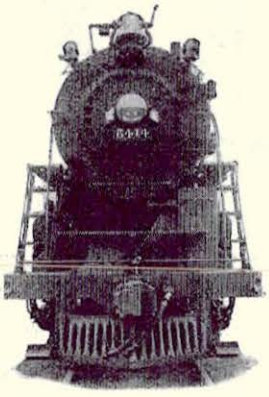
25 or more years old

"Only 8 per cent of the tonnage of the American merchant marine is twenty-five or more years old, according to a study of world shipping prepared by the Baltic and International Maritime Conference."

From *The New York Times,* April 2, 1933.

But only

65% OF OUR LOCOMOTIVES BUILT SINCE 1908



35%

25 or more years old

This means that 35 per cent of the present locomotive inventory is more than twenty-five years old.

The actual percentage of locomotive obsolescence is even greater.

No locomotive more than twelve years old can be considered modern.

The replacement of this obsolete power with modern locomotives, operating at greatly reduced costs, is one of the most important steps in the reduction of operating expenses and the rehabilitation of railroad earnings.

It takes Modern Locomotives to make money these days!

THE BALDWIN LOCOMOTIVE WORKS

PHILADELPHIA

Published every Saturday by the Simmons-Boardman Publishing Company, 1309 Noble Street, Philadelphia, Pa., with executive offices at 30 Church Street, New York

SAMUEL O. DUNN, *Chairman of Board*
HENRY LEE, *President*
LUCIUS B. SHERMAN, *Vice-Pres.*
CECIL R. MILLS, *Vice-Pres.*
ROY V. WRIGHT, *Vice-Pres. and Sec.*
FREDERICK H. THOMPSON, *Vice-Pres.*
GEORGE SLATE, *Vice-Pres.*
ELMER T. HOWSON, *Vice-Pres.*
F. C. KOCH, *Vice-Pres.*
JOHN T. DEMOTT, *Treas.*

CHICAGO
105 West Adams St.

WASHINGTON
17th and H Streets, N. W.

CLEVELAND
Terminal Tower

SAN FRANCISCO
58 Main St.

Editorial Staff
SAMUEL O. DUNN, *Editor*
ROY V. WRIGHT, *Managing Editor*
ELMER T. HOWSON, *Western Editor*
H. F. LANE, *Washington Editor*

B. B. ADAMS
C. B. PECK
W. S. LACHER
ALFRED G. OEHLER
F. W. KRAEGER
E. L. WOODWARD
J. G. LYNE
J. H. DUNN
D. A. STEEL
R. A. DOSTER
JOHN C. EMERY
H. C. WILCOX
NEAL D. HOWARD
CHARLES LAYNG
GEORGE E. BOYD
WALTER J. TAFT
M. H. DICK
S. R. HAMILTON

The Railway Age is a member of the Associated Business Papers (A. B. P.) and of the Audit Bureau of Circulations (A. B. C.).

Subscriptions, including 52 regular weekly issues, payable in advance and postage free; United States and possessions, 1 year $6.00, 2 years $10.00; Canada, including duty, 1 year $8.00, 2 years $14.00; foreign countries, 1 year $8.00, 2 years $14.00.

Single copies, 25 cents each.

Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name registered U. S. Patent Office.

Vol. 94 May 6, 1933 No. 18

In This Issue

Louisville & Nashville Completes Outstanding Bridge 658

A description of this new Ohio river structure at Henderson, Ky., which embodies many features of unusual interest and which replaces a bridge in service since 1885.

Solution Suggested for the Railroad Problem 665

Paul Synnestvedt, Philadelphia, Pa., outlines plan of federal incorporation which, he holds, would make it possible to avoid government ownership.

President Roosevelt Approves Transportation Bill 668

An article outlining the provisions of the Emergency Transportation Act of 1933, which is designed to aid railways while awaiting the Transportation Act of 1934.

EDITORIALS

Conflicting Views Regarding Employment and Wages 655
Canada and the U. S. A.—A Transportation Parallel 656
Shutting Down Water Stations 657
A Place for the Motor Coach 657

GENERAL ARTICLES

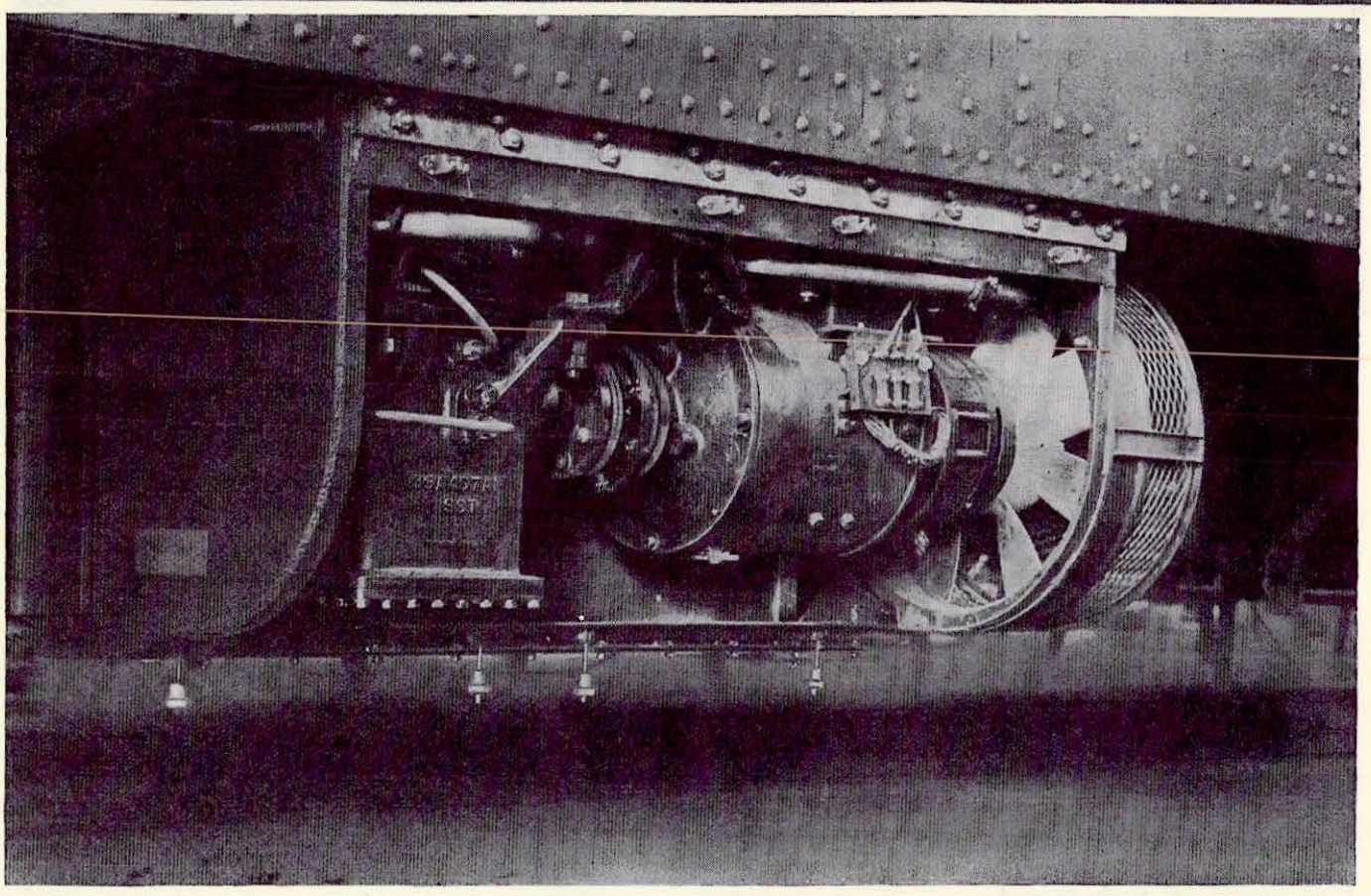
Louisville & Nashville Completes Outstanding Bridge 658
M. D. T. Refrigerator Cars Insulated with Aluminum Foil 663
Solution Suggested for the Railroad Problem, by Paul Synnestvedt 665
Freight Car Loading 667
President Roosevelt Approves Transportation Bill 668
Bledsoe Succeeds Storey on Santa Fe 671
The Union Pacific in 1932 672
Transportation Yet to Come 673

COMMUNICATIONS 674

NEWS 675

The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

CONVENIENT of CARS -- an important of Westinghouse



The Refrigerating Unit which makes possible convenient pre-cooling of cars. It has ample cooling capacity for all requirements.

COMPLETE AIR CONDITIONING

PRE-COOLING

operating feature Air Conditioning . .

THIS problem of pre-cooling cars at yards or terminals becomes a simple matter when you install a Westinghouse air conditioning system. Its refrigerating unit is designed to provide pre-cooling with greatest convenience.

In the Westinghouse refrigerating unit, a compact a-c.--d-c. motor is direct-connected to the high-speed compressor. For pre-cooling at yard or terminal, the a-c. end of this motor is simply plugged-in on an a-c. power source. At the same time the d-c. end, without any change of connections, can automatically operate as a generator for battery charging, when desired.

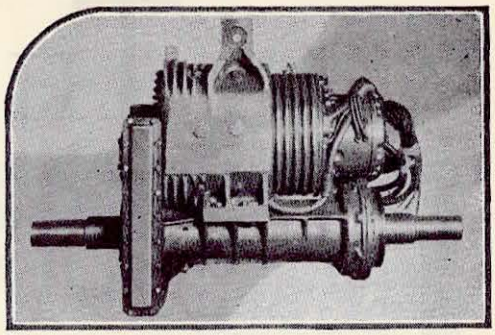
The complete refrigerating unit . . . a-c.--d-c. motor, compressor, fan, liquid receiver, oil separator and a-c. starter . . . is housed in a single compact box which is suspended below the car floor. This box has a removable side and bottom making all parts easily accessible.

Westinghouse has met the needs of the railroads with an air conditioning system that is *mechanically, electrically* and *economically* right.

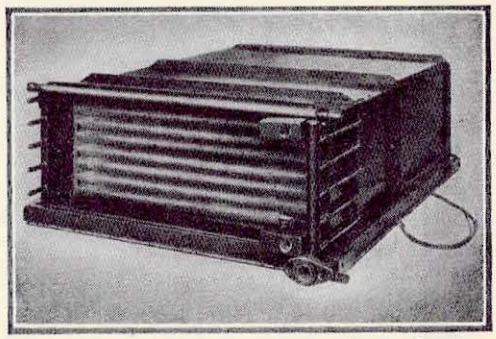
Our engineers will be glad to make arrangements for you to inspect this equipment in service and will demonstrate why it gives the most thorough, practical and economical solution to your air conditioning problems.

Westinghouse

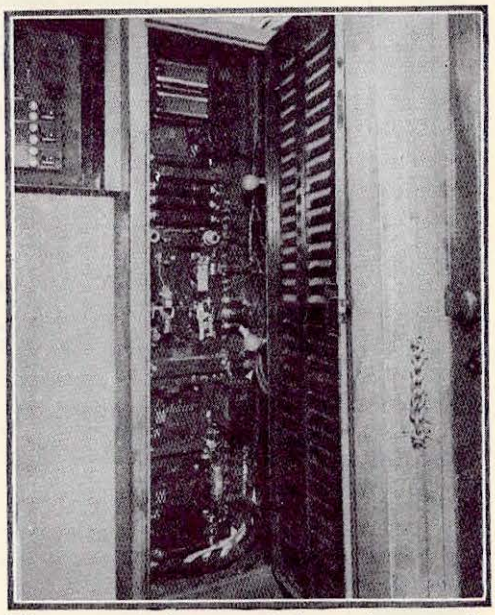
Quality workmanship guarantees every Westinghouse product



The 15-kw. Axle Generator supplies power for air conditioning, lighting, and battery charging. Its gear drive has an operating background of 12 million miles.



The Air Conditioning Unit which fits into the car roof cools, heats, humidifies, de-humidifies and ventilates.



The automatic features of the equipment mak supervision simple. The Controls fit standard lighting control cabinets.

SEND FOR INFORMATION

Westinghouse Electric & Manufacturing Company,
Room 2-N East Pittsburgh, Pa.
Gentlemen: Please send me your Air Conditioning Booklet C-1967.

Name .....
Company .....
Position .....T 79556
Address.....RA 5-6-33

EQUIPMENT — FROM RAIL TO ROOF

THIS NEW PLAN IS

NORTH AND SOUTH RAILROAD COMPANY
PAYROLL

Payroll of BUFFALO Division — TRANSPORTATION Department — FIRST Half of JANUARY 19 33 — Audit No. 59

OCCUPATION	GROSS EARNINGS	EARNINGS (Less 10%)	OTHER DEDUCTIONS	CHECK NO.	DATE	NAME	LOCATION	AMOUNT OF CHECK	DATE DELIVERED	REMARKS
ENGINEER	119 42	107 48	14 50	156 41	JAN 22 33	J A ROSE	DETROIT	92 98		
	125 00	112 50	10 00	156 42	JAN 22 33	JOHN C SMITH	DETROIT	102 50		
	120 00	108 00	5 67	156 43	JAN 22 33	JAMES L WATKINS	DETROIT	102 33		
	364 42	327 98	30 17					297 81		

NORTH AND SOUTH RAILROAD COMPANY
PAY CHECK

DETROIT, MICHIGAN January 22, 1933

PAY TO ORDER OF:

CHECK NO.	DATE			
156 41	JAN 22 33	J A ROSE	DETROIT	$ 92 98

SIGNATURE

EARNINGS JOURNAL

DATE	SERVICE LOCATION AND RATE	INITIALS	MILES THIS RUN	STRAIGHT TIME WORKED	STRAIGHT MILES PAID	OVERTIME	CONSTRUCTIVE ALLOWANCE	TOTAL PAY MILES	EARNINGS	EMPLOYEE NUMBER ANALYSIS
1	2 11 8 35	JAR		12 70	159 00	18 75 A				
2		JAR		8 92	160 00					
4		JAR		9 92	159 00					
5		JAR		7 33	160 00		12 50 C	669 25	55 88	1019
2	2 11 8 35	GWN		7 42	159 00					
5		GWN		6 67	159 00			318 00	26 55	1015
1	2 11 8 35	WSA		8 17	160 00					
2		WSA		7 50	159 00					
3		WSA		7 17	159 00			478 00	39 91	1020
2	2 11 8 35	JLR		8 83	159 00					
3		JLR		5 83	159 00					
4		JLR		10 67	174 00			492 00	41 08	1026
1	2 11 8 35	HGB		5 33	159 00					
2		HGB		12 70	159 00	23 44 A				
3		HGB		8 83	159 00					
4		HGB		6 83	159 00					
5		HGB		7 75	160 00		3 12 C	822 56	68 68	1033
3	2 11 8 35	JTB		7 83	159 00					
4		JTB		7 75	160 00					
5		JTB		9 50	160 00		6 25 C	485 25	40 52	1027
	2 11 8 35	20	0	167 65	3201 00	42 19	21 87	3265 06	272 62	272 62
1	2 11 8 20	OGJ		6 33	160 00					
2		OGJ		8 25	159 00					
3		OGJ		7 25	160 00					
4		OGJ		6 92	160 00					
5		OGJ		7 50	160 00		12 50 B	811 50	66 54	1059
2	2 11 8 20	CAP		9 25	159 00					
4		CAP		6 00	160 00			319 00	26 16	1075
2	2 11 8 20	JWS		6 92	160 00					
3		JWS		7 50	159 00					
4		JWS		7 00	160 00					
5		JWS		7 50	159 00			638 00	52 32	1084
2	2 11 8 20	JCH		6 92	160 00					
3		JCH		8 08	159 00			319 00	26 16	1085
	2 11 8 20	14	0	95 42	2075 00	0	12 50	2087 50	171 18	171 18
1	2 11 8 05	JARW		7 50	160 00					
2		JARW		6 50	160 00			320 00	25 76	1012
2	2 11 8 05	MBA		10 83	159 00					
3		MBA		9 00	158 00			317 00	25 52	1030
2	2 11 8 05	GH		10 83	159 00	18 75 C				
3		GH		9 50	160 00			337 75	27 19	1034
	2 11 8 05	6	0	54 16	956 00	18 75	0	974 75	78 47	78 47

EARNINGS RECORD

DEDUCTIONS — 1st HALF: KIND, AMOUNT — 2nd HALF: KIND, AMOUNT
1 0 0 0
4 2 0
7 7 5 0

Employee 1019 J A ROSE ENGR
Address DETROIT
Division BUFFALO Month JANUARY 1933

DATE	SERVICE LOCATION AND RATE	INITIALS	MILES THIS RUN	STRAIGHT TIME WORKED	STRAIGHT MILES PAID	OVERTIME	CONSTRUCTIVE ALLOWANCE	TOTAL PAY MILES	EARNINGS
1	2 11 8 35	JAR		12 70	159 00	18 75 A			
2		JAR		8 92	160 00				
4		JAR		9 92	159 00				
5		JAR		7 33	160 00		12 50 C	669 25	55 88
7	2 11 8 35	JAR		7 17	160 00				
8		JAR		8 83	159 00				
10		JAR		8 25	160 00		12 50 C	491 50	41 04
11	1 11 7 50	JAR	20	4 45	100 00				
12		JAR	20	5 20	100 00				
13		JAR	20	5 25	100 00		300 00	22 50	

EARNINGS RECORD CONTROL

JANUARY 1933 Month — BUFFALO Division — 1-2-11 Code

SERVICE LOCATION AND RATE	TRIPS	MILES THIS RUN	STRAIGHT TIME WORKED	STRAIGHT MILES PAID	OVERTIME MILES PAID	CONSTRUCTIVE ALLOWANCE MILES	TOTAL PAY MILES	EARNINGS
2 11 8 35	20	0	167 65	3201 00	42 19	21 87	3263 06	272 62
2 11 8 20	14	0	95 42	2075 00	0	12 50	2087 50	171 18
2 11 8 05	6	0	54 16	956 00	18 75	0	974 75	78 47
TOTAL	40	000000	317 23	6232 00	60 94	34 37	6325 31	522 27
HOURS	000	000000	317 23	448 56	3 08	2 50	000000	000000
8 35			174 98	267 28	3 52	1 82		272 62
8 20			97 81	170 15		1 03		171 18
8 05			54 50	79 96	1 51			78 47
COMPENSATION			327 29	517 39	5 03	2 85		522 27

Under this plan the following records are prepared in one operation directly from the original time returns:

1. Employees' earnings detail.
2. Summaries for compilation of I. C. C. Report of Hours of Service and Compensation.
3. Summaries for distribution of earnings.

No intermediate records or pre-calculation of earnings is necessary. Payrolls and paychecks are likewise prepared in one operation. Complete details of this plan and samples of the above forms may be obtained from the Railroad Accounting Division, Burroughs Adding Machine Company, Detroit.

THE MOST ECONOMICAL

for handling timekeeping and payroll records of employees in train and engine service . .

The first railroad that installed this new plan found it to be amazingly simple and easy to operate. Actual savings were remarkable.

Certainly you will want to compare it with your present system and learn how it consolidates into one straight line operation, in one department, work that formerly required several operations.

It will pay you to call in a representative of Burroughs Railroad Accounting Division and have him explain this new plan. He will show you how this result can be obtained under any set of conditions, so that you can determine the savings it will make for you.

Your local Burroughs office will arrange such a demonstration—without obligation on your part—or you may write direct to us.

BURROUGHS ADDING MACHINE COMPANY, DETROIT, MICHIGAN
Railroad Accounting Division

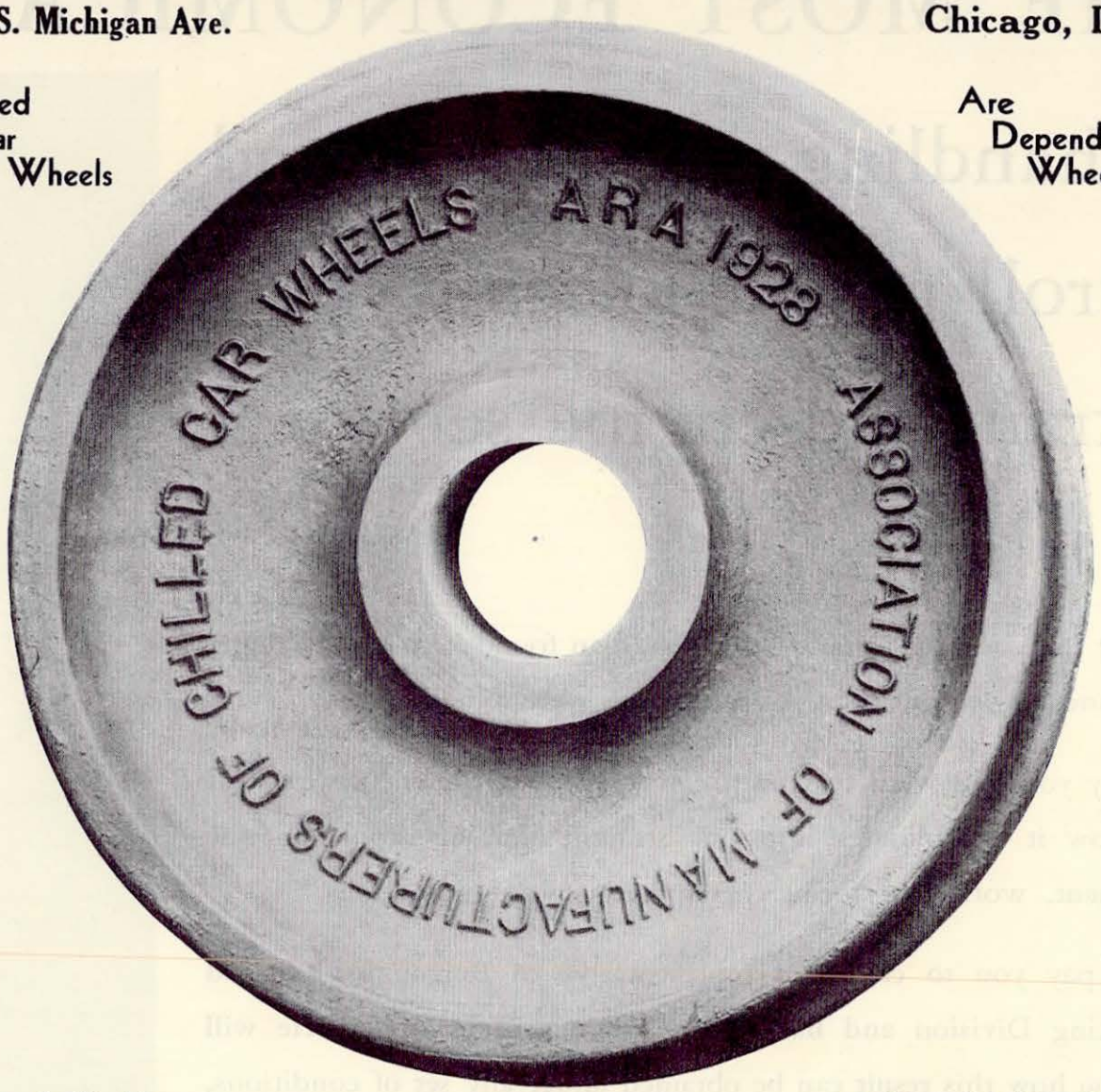
Burroughs

Association of Manufacturers of Chilled Car Wheels

332 S. Michigan Ave. **Chicago, Illinois**

Chilled Car Wheels

Are Dependable Wheels



MEMBERSHIP

1. Albany Car Wheel Co.
2. American Car & Fdry. Co.
3. Bass Fdry. & Machine Co.
4. Canada Iron Foundries, Ltd.
5. Canadian Car & Fdry. Co.
6. Central Car Wheel Co.
7. Dickson Car Wheel Co.
8. Dominion Wheel & Fdries., Ltd.
9. Griffin Wheel Co.
10. Hannibal Car Wheel & Fdry. Co.
11. Lobdell Car Wheel Co.
12. Louisville Car Wheel & Ry. Sup. Co.
13. Marshall Car Wheel Co.
14. Maryland Car Wheel Co.
15. Mt. Vernon Car Wheel Mfg. Co.
16. New Orleans Car Wheel Co.
17. New York Car Wheel Co.
18. Pullman Car & Mfg. Corp.
19. Ramapo Fdry. & Wheel Works
20. Reading Car Wheel Co.
21. Southern Wheel Co.
22. Tredegar Iron Works

Thru all the years of American railroad operation
THE CHILLED CAR WHEEL
has carried the wheel burden of transportation safely and cheaply. Its use under the heaviest modern equipment proves it is the best wheel and lowest in mileage cost. The present necessity for economy in railroad operation is met in part by the use of
THE CHILLED CAR WHEEL

CHILLED CAR WHEEL MILEAGE MEANS SAFETY AND LOW COST

A Complete Consulting *and* Water Treating Service

Dearborn

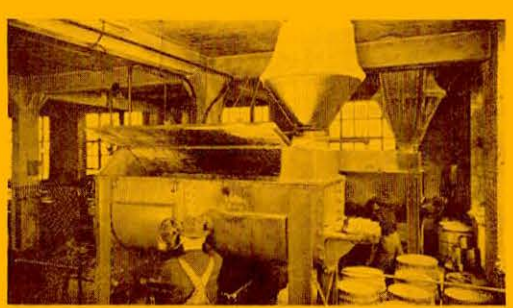
TRADE MARK REGISTERED

A necessary part of effective water treating is a complete consulting service, such as accompanies Dearborn Scientific Feed Water Treatment. This service has grown up with the Dearborn Organization for nearly a half century. It is designed to meet every requirement of modern railway operation.

Because of the fact that our Service Representatives are always within easy call, due to the wide distribution of Dearborn Treatment, it is not necessary to make extra charge for this consulting service. Neither do we charge for surveys made either before your first Dearborn Treatment is formulated or in later studies that our method of laboratory control may require.

Dearborn methods are direct and economical. They are in the most general use the world over. The great Dearborn Laboratories are engaged constantly in making analyses of waters and in research for improvement of method and material. The studies and recommendations of our corps of chemical engineers are based upon the conclusion of many, many thousands of cases that have gone before. Therefore, we work smoothly and directly, without lost motion, without experiment and delay.

The name Dearborn has become synonymous with complete, economical correction of water troubles in steam boilers. The fact is recognized that Dearborn, the Pioneer of the '80s, is Dearborn the Leader today and that if any more comprehensive degree of real service were necessary in attaining the best results, Dearborn would have adopted it.



If you are not using Dearborn Service, remember that all of our experience is at your command. Discuss our methods with the Dearborn Service Representative who calls upon you, or write us describing your operating conditions and send half gallon samples of the water supplies for analysis and recommendations. Address us at 310 South Michigan Avenue, Chicago; 205 East 42nd Street, New York; 2454 Dundas Street, W., Toronto.

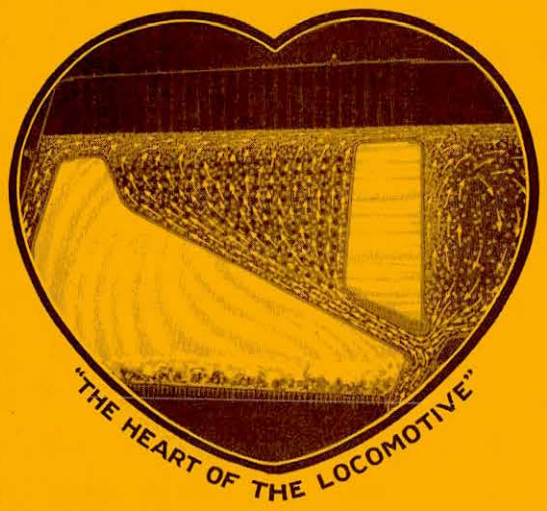
1933 A CENTURY OF PROGRESS CHICAGO

NO-OX-ID
IRON RUST
TRADE MARK
The Original Rust Preventive

Steel buried or exposed can be protected against rust reliably with NO-OX-ID for long periods of time. NO-OX-ID is easy to apply. Inexpensive. Combines both mechanical and chemical rust prevention. A standard in railway service for fifteen years. Paint can be applied over NO-OX-ID FILLERS to match color schemes while the steel beneath is safe from rust. Inquiries invited.

DEARBORN CHEMICAL COMPANY

Efficiency Builders



CHRISTY

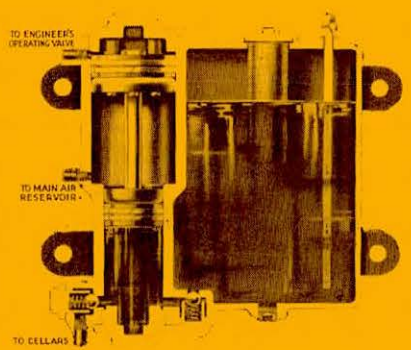
Pneumatic Lubricators

Provides a manually operated pneumatic system supplying oil under pressure to engine and trailer truck cellars, preventing delays due to hot boxes and insuring continuous lubrication with minimum attention and lowest cost.

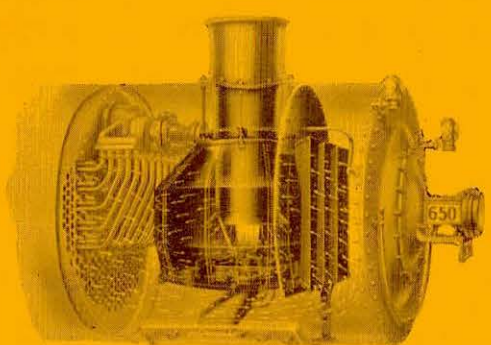
Nicholson Thermic

SYPHONS

By adding effective heating surface and creating rapid circulation, Syphons increase locomotive boiler efficiency 8.47%. They improve locomotive performance, reduce maintenance costs and provide unfailing safety. Syphons are recognized standard for old and new passenger, freight and switching locomotives.

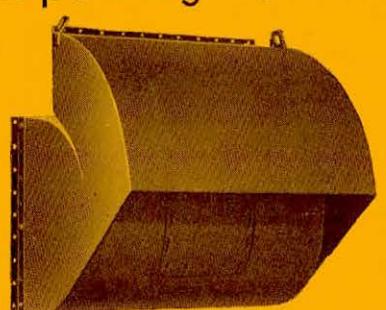


Spark Arresting Front Ends for Varied Operating Conditions



CYCLONE

The cyclonic movement of the gases and cinders breaks up and quenches the sparks without use of netting and with no restriction of draft. Permits use of semi-bituminous or lignite coal without sparks.
Definite and notable improved draft and steaming. Now in service on more than 400 locomotives.



"L AND B"

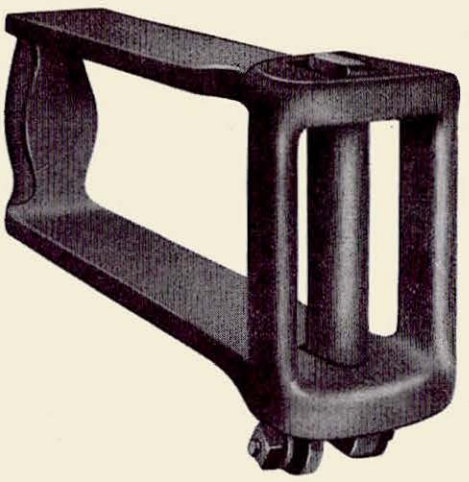
Permits operation with both Lignite and Bituminous coal. Developed and used extensively on the Chicago, Burlington & Quincy R. R. Co.

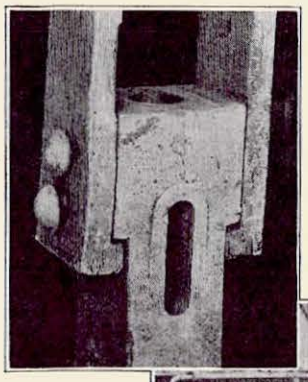
LOCOMOTIVE FIREBOX COMPANY

NEW YORK CHICAGO MONTREAL

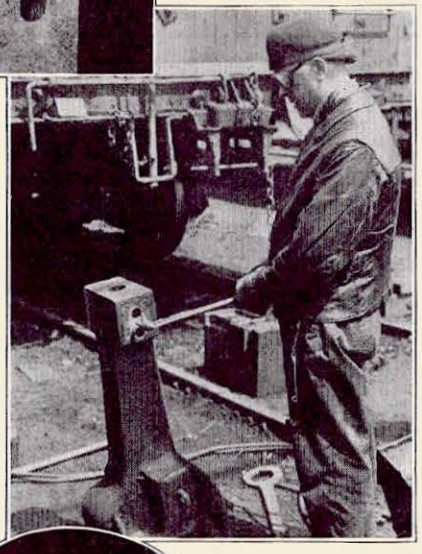
JANNEY

VERTICAL CAST STEEL COUPLER YOKE

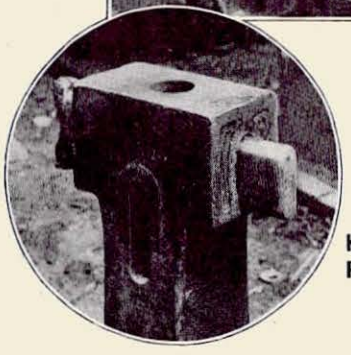




LOOSE RIVETS



BURNING OUT BRIDGE



KEY IN PLACE

Thousands of wrought riveted yokes previously applied to freight equipment of the American Railroads have been replaced with Janney Yokes, eliminating the heavy maintenance expense arising from loose yoke rivets.

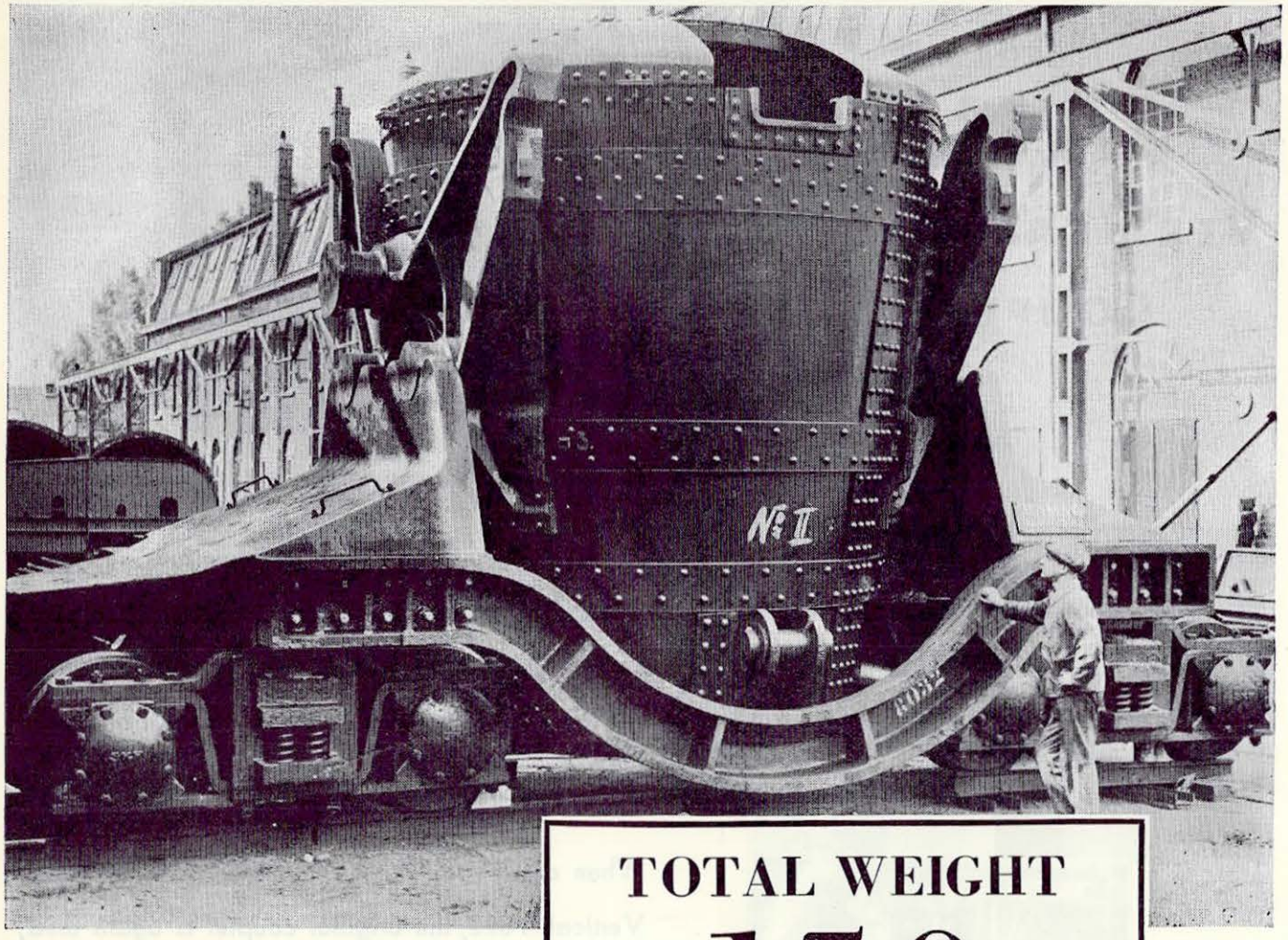
When a wrought yoke is replaced with a Janney Vertical Yoke, the original coupler is again used, the bridge of metal between the rivet holes in the butt being burnt out to form the Janney key slot.

The heavy vertical forged steel key used with the Janney Yoke fits into the slot formed when the bridge between the rivet holes of the coupler shank is burnt out, and is the dependable connection between the coupler and yoke.

The Janney Vertical Key Yoke permits quick and easy changing of couplers.

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS



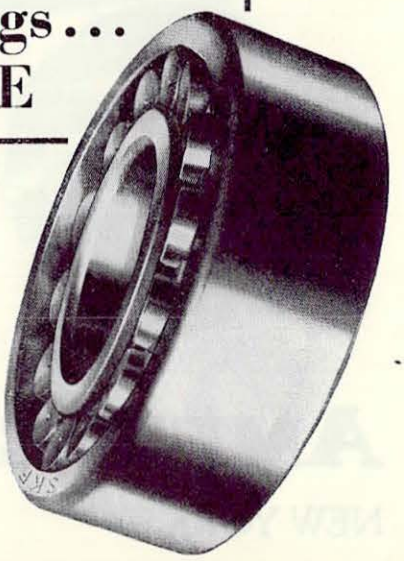
TOTAL WEIGHT 150 TONS

FAR... from the Maximum Punishment SKF Bearings... WILL TAKE

SKF *Bearings Stand Up In Hard Railroad Service*

TOUGH?... SKF Journal Bearings just have to be tough to take the punishment handed out in railroad service. On this huge ladle car the journal load on each SKF Bearing is 18¾ tons. Yet, on the driving axles of locomotives, SKF's take a maximum load of 19½ tons per bearing in constant, heavy-duty runs without a bit of trouble!

Brute jobs prove the wide margin of reserve strength SKF Journal Bearings possess. To the railroads this inherent stamina is a definite assurance of reliability, no delays, and lowered maintenance. Hundreds of thousands of miles of satisfactory performance on engine drivers, lead, tender and trailer trucks, have demonstrated that tangible economies in operation are certain with SKF Journal Bearings.



SKF
JOURNAL BEARINGS

SKF INDUSTRIES, INCORPORATED
40 East 34th Street New York, N. Y.
3039

TURN OLD RAILS INTO NEW

by

OXWELDING

NOT literally, of course, but you can make old rails ride like new by Oxwelding the battered ends.

You can materially increase the life of the rail and reduce maintenance cost by Oxwelding joints.

Oxwelded frogs, switchpoints and crossings indefinitely postpone purchases of new material.

Oxwelded butt joints in street and road crossings and through tunnels save their cost many times over during the life of the rail.

Year after year Oxweld Railroad Service proves of increasing value to the majority of Class 1 Railroads.

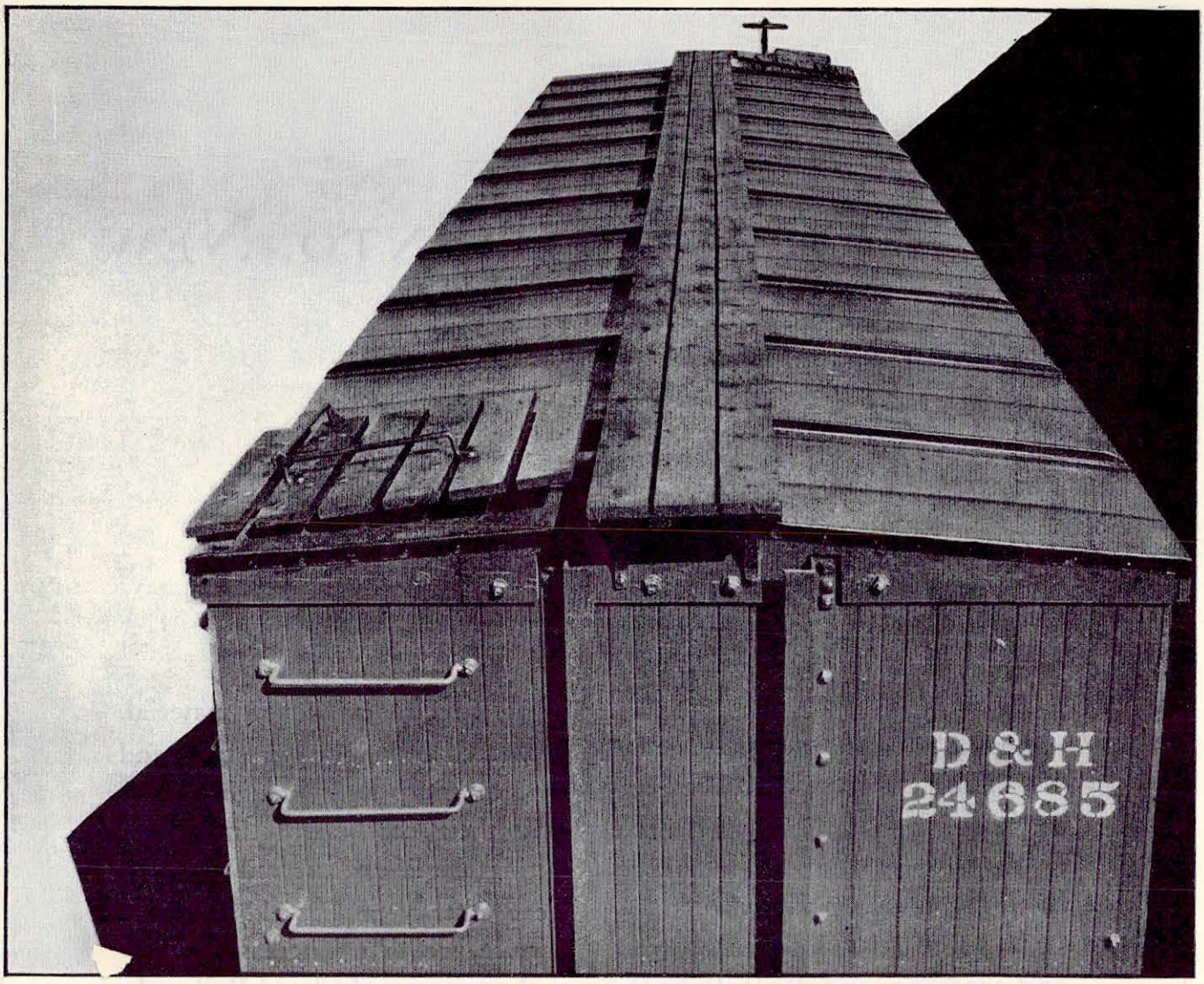
OXWELD RAILROAD SERVICE

The Oxweld Railroad Service Company

Unit of Union Carbide and Carbon Corporation

UCC

NEW YORK, Carbide and Carbon Building CHICAGO, Carbide and Carbon Building



UNIVERSAL DRY LADING ROOF

APPLIED OVER 20 YEARS AGO AND STILL IN A-1 CONDITION

Here is a Universal Dry Lading Roof
Applied July, 1912, over 20 years ago
And still in A-1 condition.

If this roof without maintenance
Gives 20 years of continuous service
On a double sheathed **wood** car
Which car was repaired several times—
How much longer service will it
Give on an **all steel** car?
Probably beyond the wildest dreams.

FIGURE IT OUT FOR YOURSELF.

Hutchins Car Roofing Company

Conflicting Views Regarding Employment and Wages

Two completely conflicting ways of dealing with wages are being advocated as means of increasing employment and hastening the termination of the depression. As to the wages of railway employees, for example, some, like the *Railway Age,* believe a larger reduction than that of 10 per cent now in effect should be made, while labor leaders advocate the establishment by federal legislation of a six-hour day at eight hours' pay, which would cause a 33 per cent advance in the average hourly wage, and a corresponding increase in the payroll if the total number of hours that labor paid for was not reduced.

Which plan would be more likely to increase employment? We know that in past depressions wages on the railways and in industry in general never were increased but always were repeatedly reduced; that those depressions finally came to an end; that employment did increase and prosperity finally was restored; and that the recovery of business always was accompanied or followed by advances in wages. The theory that employment would be increased in a depression and the restoration of prosperity aided by a general reduction of working hours, which was accompanied by an increase in wages per hour, is not a new one, but it is one which never has been tried. Consequently, there is experience that supports the view that reductions of wages in a period of depression help to increase employment and restore prosperity, while there is no actual experience which supports the view that the establishment in a depression of a shorter working day without reduction of the pay for a day's work would increase employment and help to restore prosperity.

Increases or Reductions of Wages?

It has been repeatedly pointed out that during the present depression, wide-spread reductions of wages have been made and have not been followed by increases of employment or by anything approaching a satisfactory revival of business. In view of experience in all past depressions, however, this recent experience is far from sufficient to support the view that the present depression has been prolonged by reductions of wages and cannot be terminated without the large advance in the average hourly wage which would be caused by the establishment of a six-hour working day at eight hours' pay.

The Interstate Commerce Commission has estimated that the establishment of a six-hour day at eight hours' pay would have made the operating expenses of the railways in 1932 greater by $414,000,000 than they were. Operating expenses were $2,430,000,000, of which about $1,530,000,000 were wages. Just where would the railways have got the money with which to have paid an additional $414,000,000 in wages? Their gross earnings and other income in 1932 were insufficient by more than $150,000,000 to pay their fixed charges, taxes and the operating expenses that they actually did incur, and obviously an increase in their payroll would not have increased the gross earning out of which the payroll had to be met. The establishment at the beginning of 1932 of a six-hour day at eight hours' pay would have either caused the railways to incur last year a much larger deficit than they did incur, or to retrench in their operations much more severely than they did retrench. More drastic retrenchments would necessarily have been made principally by laying off employees, which would have largely or completely nullified the effort to increase employment by the establishment of a six-hour day at eight hours' pay.

It may be said that the money with which to have met the additional payroll could have been secured by reducing the amount of fixed charges paid from earnings, but taxes, and operating expenses increased as proposed, would have almost equalled total earnings; and, in spite of all theories as to what should have been done, there can be no question that railway managements actually would have offset the establishment of a six-hour day at eight hours' pay as much as practicable by even more drastic retrenchments in operation than were actually made in 1932.

Let us suppose, on the other hand, that a reduction of 25 per cent instead of 10 per cent in basic wages had been in effect in 1932. The total number of employees was 1,048,568, and the total wages paid them in connection with both operation and capital expenditures was $1,536,000,000. If the reduction from basic rates of pay had been 25 per cent, the railways for $1,536,000,000 could have given the same average number of hours of employment to about 157,000 more persons than they actually did employ. Probably the money saved as a result of the greater reduction of the average hourly wage would have been used partly to give increased employment on the railways and partly to make larger purchases from other industries, but these larger

purchases would have increased employment in other industries.

Increased Production the Objective

There is a consideration of great importance which is commonly disregarded in current reasoning concerning the effects of changes in wages and working hours. Prosperity cannot be restored merely by increasing the number of persons employed. Prosperity is measured not only by the distribution of what is produced, but by the total volume of production, which of course determines the amount of necessities, comforts and luxuries that can be distributed. Measured by freight car loadings the total volume of physical production in the United States in 1932 was 47 per cent less than in 1929, and in the first four months of 1933 was 49 per cent less than in 1929. If employment should be so redistributed that everybody who had work in 1929 would be given work now, but there was no increase in present production, the income of the American people in necessities, comforts and luxuries—in other words, their real income—would continue to be only one-half as great as it was in 1929. That, surely, would not be regarded by anybody as the restoration of prosperity.

The restoration of real prosperity can be accomplished only by measures which will not merely temporarily increase employment, but which will permanently double or treble production in industry, and the traffic of the railways. Increased employment and production must be the dual objectives and results of any constructive economic policy; and any policy which has not increased production in industry as its main objective will make no permanent contribution either to increased employment or to increases in the real incomes of those who get employment.

We are confronted with an emergency, and emergency measures should be adapted to the emergency to be dealt with. There is great and widespread unemployment, and to deal with the emergency that unemployment presents work should be so divided on the railroads and in every other industry as to spread employment among the largest number of persons practicable. On the railroads, as in every other industry, however, the amount of wages that can be paid is determined by the amount of earnings available with which to pay them, and when earnings decline the maintenance or increase of wages tends inevitably to reduce employment, while reductions of wages tends to maintain or increase employment. Therefore, in the interest of the railways, of all railway employees who are out of work, and of the public, present conditions demand that there shall be no increase of present wages per hour but that they shall be further reduced. With total production in the United States only one-half as great as it was four years ago, no effort should be spared to cause an increase in the demand for commodities, which, in turn, will cause increased employment and production, and an increase in the demand for the products of industry will be caused, not by increasing, but by reducing, the cost of producing and transporting them.

Canada and the U. S. A.—A Transportation Parallel

There is a striking similarity between the railway situation in Canada, and steps being taken to deal with it, and the condition and proposed remedies in the United States. In Canada a governmental commission examined into the railway situation, found an unhealthy financial condition and excessive competition among the railways, and with the railways on the one hand and highway transport on the other. It recognized the necessity for control of highway transport and recommended measures to reduce competition among the railroads.

In the United States, an unofficial group, the Coolidge committee, made observations and recommendations of similar import. In giving effect to these recommendations, however, governments in both countries have thus far ignored entirely the emergency nature of the competition the railways are facing from unregulated transport and have devoted all their attention to financial measures and the competition among the railways themselves. Reduction of competition among the railways, whether by a "co-ordinator," as proposed in the United States, or an "arbitral tribunal," as provided for in Canada's railway bill, is looked upon with disfavor by organized railway labor in both countries, who fear a consequent reduction in railway employment.

Unquestionably some reduction in costly competition among the railways is needed in both countries. The suggestion has been made in these columns and elsewhere that competition in l.c.l. freight traffic is an obvious object for economy and that such traffic could probably be turned over to the Railway Express Agency at great gain to shippers and railways—and railway employment—alike. There are other instances, however, where reduction in competition—pooling and consolidated terminal operation—would undoubtedly throw railroad men out of work. Yet, in all probability, sheer necessity will force—has in fact already forced—much co-ordination of this kind. We do not understand why organized railway labor has not recognized and acted upon the obvious deduction from the facts that the longer motor transport competition is permitted to go unbridled, the further must the contraction of competition among the railroads themselves be pushed.

The railroads in the United States must earn enough at least to pay taxes and interest on the underlying securities of conservatively capitalized companies if the national credit structure is to be preserved. In Canada the credit of the Dominion itself depends upon its control of the expenses of the Canadian National. It is obvious, therefore, that the complete obliteration of railway owners and creditors is an impossible policy for the governments of either country to adopt. There are just two alternatives—either competition from other forms of transport must be controlled to prevent its capture of traffic which economically should stay on

the rails, or competition of all kinds among the railways themselves must be severely liquidated. The firmer the control of competing transport, the less deeply will the pruning of the railways have to go—and from a standpoint of the best interests of the two countries we do not think it should be carried too far. Why does not organized labor recognize, and urge emphatically on their governments, the one course of action—regulation of other agencies of transport—which offers sure protection for the maximum possible number of railway jobs and the urgent necessity for which all students of the problem concede?

Shutting Down Water Stations

Because of the reduced demand for water resulting from the decrease in traffic, it has been possible to effect appreciable operating economies in some instances by shutting down certain stations. The selection of the facilities to be taken out of service is affected by a variety of considerations, of which those involving relative desirability from a transportation standpoint probably receive primary weight. Under this head come the spacing of stations, whether the delivery point is in a sag or on a summit in the grade line, and whether train stops are required for other reasons. Other points that should be considered are the quality of the water and the cost of operation.

These various considerations are naturally studied from the standpoint of present requirements, namely to provide the best available water in the quantities now required at the most convenient points and at the lowest cost. But this is not enough, for case after case may be cited where the stress of existing circumstances is pointing the way to permanent economies in every phase of railway operation. For this reason studies made of the possibilities of suspending the operation of water stations should be approached from a broad aspect. They should be made with adequate consideration of the opportunities for a permanent improvement in the water supply facilities, which in many cases would imply the eventual abandonment of stations now out of service or others about to be shut down.

This means that the situation must be studied not alone from the viewpoint of present demands for water, but with due consideration to the increased demands that come with heavier traffic. More important than this, however, is the manner in which any schedule for reducing the number of stations will fit into a program for the improvement of water supply facilities, embracing more efficient pumping equipment, better quality, and adequate storage and delivery service. The railways have made remarkable progress in the last 20 years in bettering their water service, but this work is by no means complete. While supplies are now generally adequate, the needs of the future should not be overlooked.

A Place for the Motor Coach

Up to a year or two ago railroad interest in motor coaches was substantial. Many railroads organized motor coach operating subsidiaries and developed extensive systems of bus lines to supplement or replace their train service. More recently, and probably as a direct result of the continued deepening of the business depression, the motor coach has faded somewhat into the background as an instrument of transportation which the railways could use aggressively and to a constantly expanding extent as a means of improving and reducing the cost of their transportation service. Railroad orders for motor coaches, the best indication of railroad interest in this type of carrier, have declined so sharply as to indicate that such buses as are being ordered are for use only as replacements of worn-out equipment and not for use in extending highway routes.

Granting that conditions during the last two years may have justified the policy of sitting tight on existing bus operations rather than expanding them, is this a sound policy to pursue in the future—even in the near future? There are numerous signs that general business is on the mend. Revival of general business will mean more travel, travel of the sort which the railways should attempt to attract to their services by every means at their command. But it should be recognized that the railways are and will be handicapped, in the solicitation of increased passenger traffic arising from improved business conditions, by the extremely limited frequency of the train service which has been made necessary by the virtual drying-up of traffic on many lines during the past two years. If the railways wish to sell their service to returning travelers, they must have something to sell.

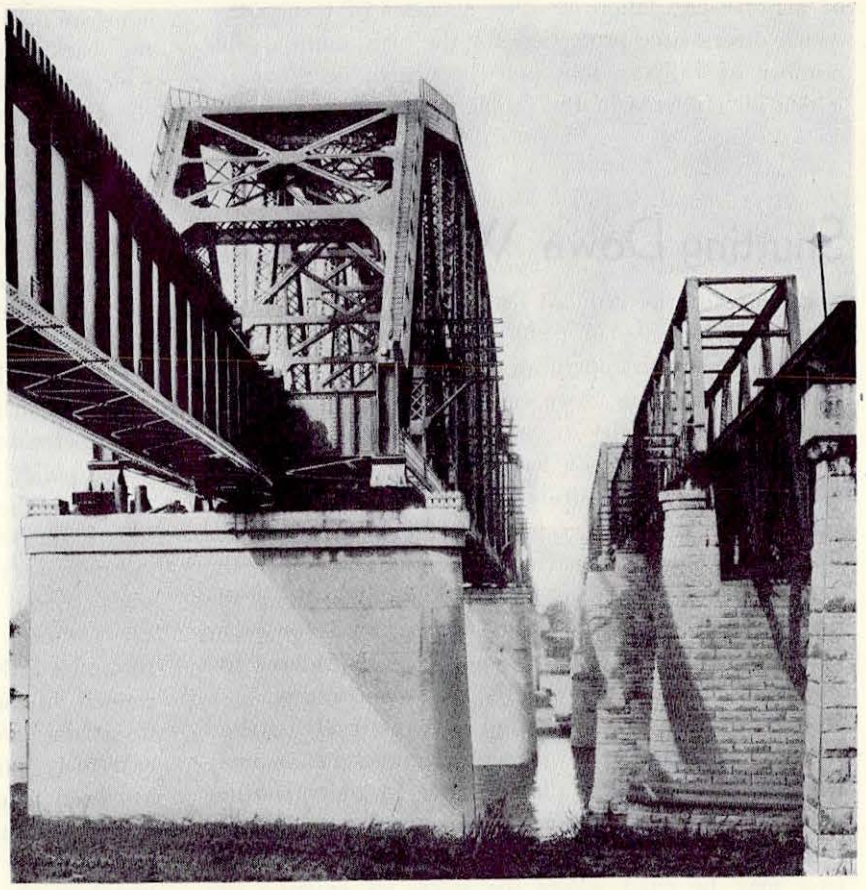
Quite possibly the motor coach will prove to be the answer to the question of how to provide the necessary frequent schedules at the minimum cost. Certainly, on the basis of records of railways that have used them, motor coaches have proved the least expensive type of carrier of relatively small capacity which the railways have at their command. The old equation representing operating costs—five motor coaches equal one train—probably still applies, since, while train operating costs have been reduced substantially, so likewise have the costs of motor coach operation.

It cannot be emphasized too strongly that frequency of service is essential to the recovery by the railways of short-haul traffic, and such frequency can be provided by a combination of train, rail motor car and motor coach service.

Thus the motor coach has by no means dropped out of the railroad picture. Although it has been in somewhat of an eclipse, it remains an essential unit in the general scheme of railway and highway coordination which, if anything, will bring about the rebirth of the railways as the foremost passenger carriers of the country.

Louisville & Nashville Completes Outstanding Bridge

New Ohio river structure at Henderson, Ky., embodies many features of unusual interest



The New and Old Bridges, as Seen from the Kentucky Bank

ON December 31, 1932, the Louisville & Nashville completed a new bridge at Henderson, Ky., which is the ninth railway bridge to be built across the Ohio river in 15½ years. Only two of these structures, those of the Chicago, Burlington & Quincy at Metropolis, Ill., and the Chesapeake & Ohio at Sciotoville, Ohio provided new crossings, the others, like the bridge at Henderson, representing replacements of old bridges of limited capacity. It is worthy of special notice, also, that all of these bridges are outstanding, in either design or proportions. The Metropolis bridge still holds the record for the longest simple span —720 ft. center to center of end pins, while the Ohio Connecting railway bridge at Pittsburgh had the longest span for a simple riveted truss, 525 ft., until the completion of the Pennsylvania bridge at Louisville, with a 643-ft. 10½-in. span of the same type. This record has now been exceeded by a span of 670 ft. in the new bridge at Henderson. This latter bridge is also distinctive by reason of its length, embracing with its approaches 7,887 ft. of continuous steel superstructure and 11,689 ft. of ballasted deck creosoted pile trestle, exclusive of 3,324 ft. of embankment forming the approach on the Kentucky side. The project involved the fabrication and erection of 19,918 tons of structural steel, of which 203 tons were used in four street underpasses that pierced the Kentucky approach embankment and 302 tons were required for river-pier caissons. In addition, it required 52,248 cu. yd. of concrete and 87,133 lin. ft. of reinforced concrete piles, involving the use of 599 tons of reinforcing steel.

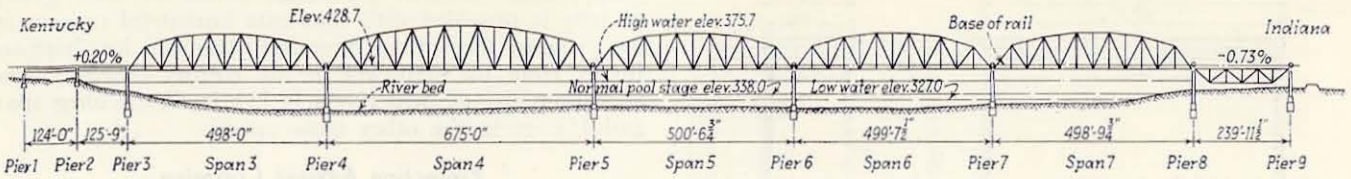
Railway Bridges Built Across the Ohio River Since 1914

Railway	Location	Year Completed
Ohio Connecting Railway (Pennsylvania)	Pittsburgh, Pa.	1915
Chicago, Burlington & Quincy	Metropolis, Ill.	1916
Chesapeake & Ohio	Sciotoville, Ohio	1917
Pennsylvania	Louisville, Ky.	1918
Southern	Cincinnati, Ohio	1922
Pennsylvania	Steubenville, Ohio	1927
Chesapeake & Ohio	Cincinnati, Ohio	1929
Cleveland, Cincinnati, Chicago & St. Louis	Louisville, Ky.	1929
Louisville & Nashville	Henderson, Ky.	1932

Old Bridge Built 48 Years Ago

The new bridge replaces a noteworthy structure completed on July 13, 1885, which served its purpose admirably until its retirement. Located at the intersection of two important traffic routes, namely, the Chicago & Eastern Illinois—Louisville & Nashville route between Chicago and the south, and the L. & N. line between St. Louis and Louisville, and serving also as the river crossing for the Illinois Central line from Evansville, Ind., to Hopkinsville, Ky., the old bridge had at times carried as many as 100 trains per day. This structure was of the high-level type with a river crossing consisting of eight through pin-connected spans about 246 ft. 2 in. long and a channel span of 521 ft. 11¾ in., flanked on the south end by a 117-ft. 5-in. deck truss, three 49-ft. deck-girder spans, 447 ft. of iron viaduct, three 72-ft. spans over Main, Elm and Green streets and a 46-ft. span over Ingram street in Henderson. On the north end, the old river spans were flanked by four 117-ft. 8-in. deck-truss spans and 16,124 ft. of ballasted deck creosoted pile trestle across the river bottom land on the Indiana side.

The old ashlar stone masonry piers, founded on shale by the pneumatic process, were in excellent condition, but because they were not large enough to support a modern superstructure and because the U. S. War department demanded a wider channel opening than that afforded by the 522-ft. channel span of the old bridge, it was necessary to build an entirely new bridge which is located down stream at an average distance of 90 ft.



Elevation of the New River Structure

from the old structure. The relation between the new and old alinements is shown on the map.

The New Bridge

In addition to the 670-ft. channel span, the river crossing proper embraces four 493-ft. 6-in. through riveted truss spans, together with a 235-ft. 2¼-in. riveted deck truss span on the Indiana side and two 122-ft. 6-in. deck girder spans on the Kentucky side. The approach on the Kentucky end, as previously stated, consists of embankment with underpasses at four streets. These are all three-span structures, with concrete piers and abutments, and reinforced concrete slab spans over the sidewalks and a shallow deck girder span over the street proper. The Indiana approach is made up of 57 spans of deck girders or beams, together with 783 ft. of ballasted deck creosoted pile trestle connecting with the north trestle approach to the old bridge, which was retained in service for an additional distance of 10,905 ft.

A greater portion of the old trestle, which was renewed in 1919, after 37 years' service, could have been incorporated in the approach to the new bridge, except for the difference in the grades on the new and old bridges. While the base of rail on the new channel span is 3.58 ft. lower than on the old channel span (affording a vertical clearance of 83 ft. above pool stage of the river), a change in the ascending approach grades, from 1.0 per cent maximum on the south and 1.4 per cent on the north approach, to 0.86 per cent at both ends required runoffs of 5,993 ft. at the south end and 6,909 ft. on the north end to intersections of the new and old grade lines. Because the new north approach structure is, therefore, entirely on a grade, involving a progressive change in pier heights, there was naturally a variation in the economical span lengths. Accordingly the viaduct embraces five different span lengths as follows, listed from south to north:

Number of spans	Length center to center of bearings	Type
7	122 ft. 6 in.	girders
25	99 ft. 8 in.	girders
9	65 ft. 3⅜ in.	girders
6	50 ft. 3 in.	girders
2	40 ft. 9 in.	girders
6	30 ft. 9 in.	beams
2	27 ft. 9 in.	beams

The river spans and the piers of the south shore spans, except Pier 2, were built for double track, but the two south shore girder spans and the entire north approach were built for single track, except that all piles for a second-track extension of the piers were driven. The south shore girders were so located as to line up with a track laid on the two east lines of stringers of the truss-span floor system.

The through truss spans are of the Warren type with curved top chords, the 493-ft. 6-in. spans having 12 panels of 41 ft. 1½ in., and the 670-ft. span 16 panels of 41 ft. 10½ in. The absence of subpaneling for trusses of such great length is unusual, particularly as it involves the use of compression diagonals from 73 ft. to 108.5 ft. long in the channel span trusses, which are 100 ft. high, center to center of the chords, at the two center panels and 60 ft. high at the hips. The 235-ft. 2¼-in. deck span is composed of six panels 39 ft. 2⅜ in. long and has parallel chords 38 ft. 2⅜ in. center to center. The trusses of the through spans are 34 ft. center to center and those of the deck span 26½ ft.

Silicon steel was used in the trusses, floor beams and stringers of all the spans, except the 235-ft. 2¼-in. deck truss span, and in the bottom laterals of the channel span. To increase resistance to corrosion, copper content was specified for all steel used in position particularly exposed to deteriorating effects, as will be explained in detail hereinafter.

The bridge was designed for a live load of two Santa Fe-type engines weighing 406,000 lb. each, with tenders weighing 200,000 lb., and a trailing load of 6,000 lb. per ft. of track, with an alternate loading of two 85,000-lb. axles spaced 6 ft. center to center. The impact percentage was computed by the formula $I = S \times \frac{400 - L}{400 + L}$ for the five through truss spans, taking only that from the nearest track assumed fully loaded. For the deck truss and girder spans, $I = \frac{300}{300 + L^2}$ was used.

All silicon steel members were proportioned for the following stresses:

1. For live load and all other forces except dead load—20,000 lb. per sq. in.

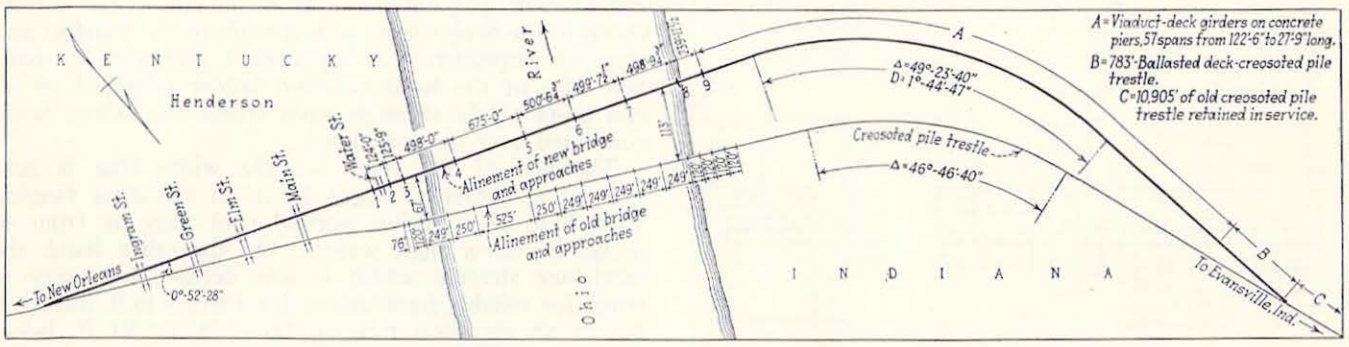
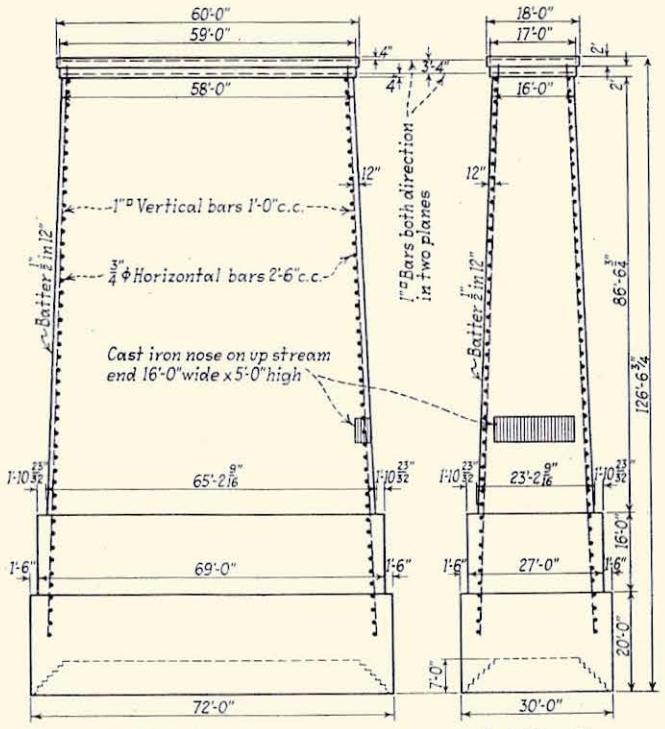


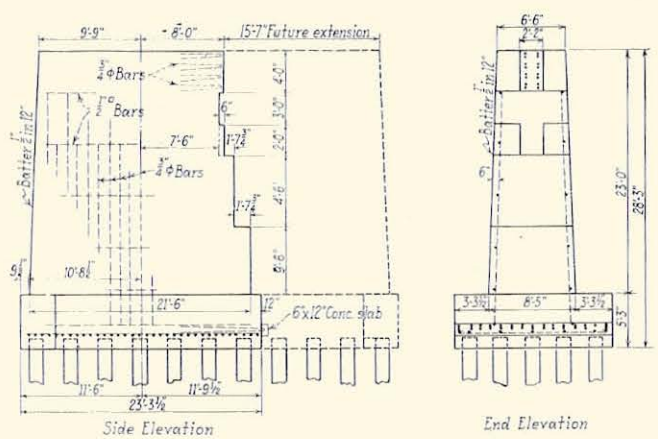
Diagram Showing the Relative Positions of the New and Old Bridges (Lateral Dimensions Exaggerated)



One of the River Piers

2. For dead load, plus 150 per cent of the live load and impact—30,000 lb. per sq. in.
3. For dead load only—30,000 lb. per sq. in.
4. For the loads specified in (2), plus wind load—34,000 lb. per sq. in.
5. For (2) or (4), combined with secondary stresses, a 20 per cent increase was allowed.

The truss members are of plain box section throughout, the top chord section having two webs and a cover plate; in the center section of the top chord of the long span, which is 47 in. wide by 48 in. deep, each web is made up of four angles and five plates with a total thickness of 3½ in., the gross section being 414.6 sq. in. The end posts have cover plates on the under side as well as on top, with manholes on the under side for inspection and painting. The bottom chords are composed of two webs four feet deep, back to back of angles, laced top and bottom, except in the two end panels which have top and bottom cover plates with manholes in the top cover plates. The heaviest member was the center section of the bottom chord, which weighed 85.45 tons. Continuity of the floor stringers is interrupted at every fourth panel point by introducing double floor beams. One of the inside panels of each group of four is provided with duplicate horizontal trusses in the plane of the bottom laterals to transmit longitudinal forces from the stringers to the bottom chords. The maximum size of field rivets is 1¼ in. in the long span and 1⅛ in. in the other truss spans.



A Typical Pier in the Indiana Approach Viaduct

Protection Against Corrosion

Special effort was made to protect the structure from corrosion. The use of copper-bearing steel, as previously mentioned, was a measure to this end. This was applied in the top cover plates and top flange angles of stringers and floor beams as well as in the girders of the approach spans and also in the top laterals, and top struts of the cross frames of stringer and girder spans. In addition, it was employed in the portals and lower sway bracing struts of the through truss spans. The rivets connecting such parts are also of copper-bearing steel.

As a further means of protecting the floor beams from brine drippings, their top flanges were covered with creosoted planks of such thickness as to bring them about one inch below the tops of the ties and these planks were covered with galvanized sheet metal of Toncan or Armco make, these sheets also being applied also to the tops of stringers and girders and the top chords of the deck truss span and over the bottom-lateral gusset plates. In detailing the portals, also, fillets were enclosed to keep out cinders and all trough-shaped portions were provided with drain holes. It is of interest to note in this connection, that the expansion bearings of the truss spans are enclosed in steel boxes that are filled with oil. Cellular block castings under fixed shoes were also filled with oil, as the inside is inaccessible for painting.

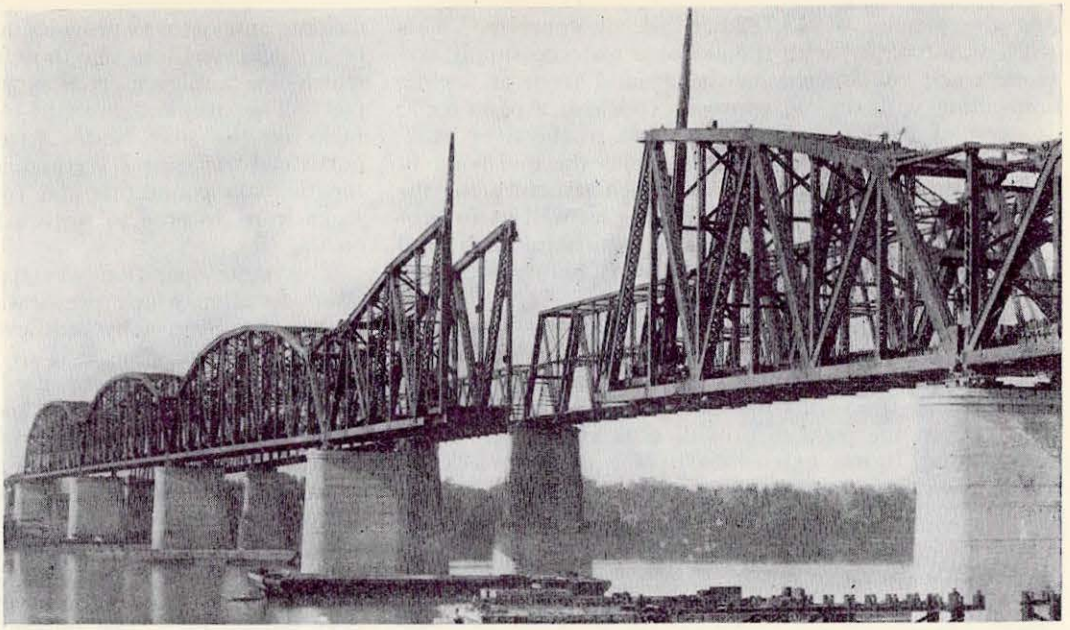
The 670 ft. span weighs 4,547 tons, while the four 493-ft. spans weigh from 2,461 to 2,568 tons each.

The Substructure

As indicated at the beginning of this article, the substructure work comprised an important part of the project, involving, as it did, the construction of 66 concrete piers, of which 7 are river-span piers, having total heights ranging from 104.9 to 126.6 ft. and requiring concrete volumes ranging from 2,615 to 6,391 cu. yd. The 57 piers of the Indiana approach range from 21.2 ft. to 56.5 ft. in total height, with concrete quantities ranging from 12.8 to 498 cu. yd.

The river piers are entirely of concrete, with temperature reinforcement in the sides and semicircular ends, and with grids of horizontal reinforcement in two planes 4 in. and 44 in., respectively, below the top of the coping. A cast iron nose 5 ft. high and 16 ft. wide was provided in the upstream end of each pier at normal pool elevation. A feature not usually found in bridge piers is a steel hand rail mounted on the perimeter of the coping, which, together with a ladder on the fixed end of each span extending from the end of the bottom chord to the bridge seat, adds greatly to the comfort and ease of inspection. Mention may properly be made here also of the hand rail and ladder provided on all end posts of the through truss spans, the railing being continued over the top chords.

The bed of the river for the width that is submerged at ordinary stages is at an elevation ranging from 8 to 27 ft. below normal pool stage or from 46 to 65 ft. below high water. On the other hand, the sandstone stratum which it was deemed necessary to reach for reliable foundations for Piers 4 to 8, inclusive, lies at an elevation ranging from 39 to 50 ft. below pool stage. The situation was one clearly indicating the



The Erection of the 670-ft. Channel Span, Note the Eye-Bar Tie Over the Pier at the Right

desirability and practicability of pneumatic caissons, but as the river is normally at a comparatively low stage during the summer and late fall months, it was anticipated that high air pressures would not be required if the caissons could be brought to bearing and sealed within this period. This plan was carried out successfully with a maximum required pressure of 26 lb. per sq. in., and computed heights of cofferdams proved adequate in all cases.

Sinking the Caissons

The caissons ranged from 21 ft. by 52 ft. to 30 ft. by 72 ft. in plan, and to a height of 12 ft., were constructed with steel shells and roof trusses strengthened with reinforced concrete in the walls and roof of the working chambers. The remainder of the caisson for an additional height of 8 ft. had a wooden frame, and 16 ft. of timber crib was added as the sinking proceeded. For Piers 3, 8 and 9, where the ground was above the water line, the caissons were built in place, while for Piers 4, 5, 6 and 7 they were built on ways, launched and floated into position. No difficulty was encountered in landing any of the caissons except for the tendency for the light sand of the river bed to scour at the upstream end just as the cutting edge made a contact. In the case of Pier 7, this resulted in throwing the caisson out of position by 10¼ in., but this was corrected by tilting the caisson and sinking it in the inclined position until the bottom was in the correct location, and then righting it.

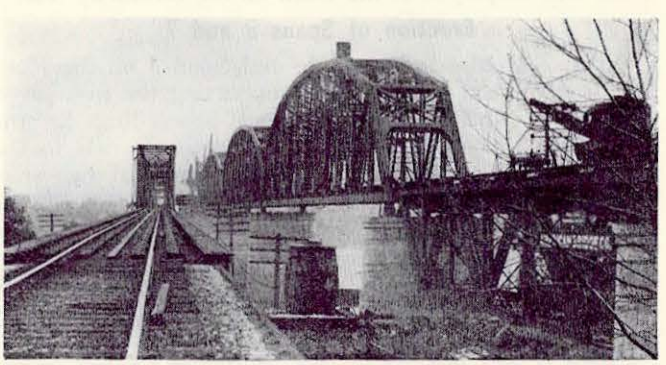
The caissons for Piers 4 and 5 were sunk entirely under air pressure and were equipped with a main lock and two material locks. The caisson for Pier 3, on the other hand, where ground level is high above the water, was sunk entirely by open dredging, for although the cutting edge reached an elevation 35 ft. below pool stage at a distance of only 140 ft. from the water's edge, the blue clay and gumbo soil effectively sealed off the water. Piers 6 and 7 were sunk for appreciable distances by open dredging and in the case of Piers 8 and 9, air was applied only for leveling off the bearing surface and for sealing.

The dredging was done through three wells 7 ft. 11 in. square, spaced about equal distances apart in the roof of the working chamber. When it became necessary to start pneumatic work, plank diaphragms suspended from cables were lowered to the bottom of these shafts and a concrete seal placed on top of them through a tremie, the effectiveness of this seal being increased by a peripheral key formed by a groove provided in the walls of the well. A steel tube 3 ft. in diameter was concreted into two of the wells to serve as the shafts for material locks, the shaft for the main lock being provided independent of the dredging wells.

The materials encountered included sand, gravel, clay and shale. At Piers 4 and 5 it was necessary to remove several feet of hard shale, and at Piers 6 and 7 it was necessary to remove a few feet of hard sandstone in thin strata alternating with shale, before reaching a solid sandstone bed, and as a consequence considerable blasting was necessary. Piers 3, 8 and 9 were brought to bearing on sand shale.

Equipment and materials other than aggregates for the construction operations were delivered to the site on a temporary track extended close to the river bank on the Kentucky side, where facilities were provided for transfer to the floating equipment used for all operations on the river piers. The sand and gravel were delivered on barges from a point some distance up the river. The floating plan was used also to supply compressed air and to mix the concrete for Piers 8 and 9 on the Indiana bank, to which the concrete was delivered in narrow-gage hopper cars.

The building of the north or Indiana approach comprised a large project by itself, involving as it did the driving of 87,133 lin. ft. of reinforced concrete piles



A View of the Two Bridges from the Indiana Side, 235-ft. Deck Truss Span on the Right

and the placing of 13,785 cu. yd. of concrete. This work was handled with the aid of a material-supply and work track constructed on the ground from an incline connecting with the old approach trestle at a point 8,200 ft. west of the river to within 500 ft. of the river bank. A concrete plant was erected at about the mid-point in the length of the new north approach structure for the manufacture of all the concrete piles as well as to provide concrete for all of the piers, which was delivered in bucket cars by a gasoline locomotive and hoisted into the forms by a locomotive crane.

The forms for the neatwork of the piers were constructed of steel panels six feet high, thus making it possible to strip and reuse them repeatedly. Provision was made in the forms for the forming of quoins in the west end of the piers to provide effective keying of the concrete of future extensions of the piers for second track.

Interesting Erection Method

The spans of the river structure were erected with a minimum of falsework, in accordance with a program that provided for the completion of the work with the uniting of the two halves of the 670-ft. span (Span 4) that had been extended to mid-span as cantilevers. Cantilever erection was also applied largely in the erection of the four 493-ft. 6-in. spans. The deck truss span was erected on falsework.

This span was completed first, in order to expedite the beginning of the progressive erection of spans 7, 6 and 5, in the order named, so that work on the north half of Span 4 could be carried on simultaneously with that on the south half of the same span, which had to wait only for the erection of Span 3 on the Kentucky side. This meant that the erection of Span 8 (the deck truss span) had to be completed long before the north approach viaduct was finished, a requirement that was met by setting the members in place with cranes working from ground tracks along each side of the falsework, the steel being delivered to the site over the ground track that was used for the approach substructure work.

After the completion of this span, the locomotive cranes for the erection of the through spans (one of 150 tons and two of 60 tons) had to be lifted from the ground to the bridge floor, a distance of nearly 60 ft. To do this a timber gallows frame was set up over one floor panel from which the stringers had been omitted, this frame providing the support for lifting tackle by means of which the two 60-ton cranes hoisted the body of the 150-ton crane. After the 150-ton crane had been assembled it was used to bring up the two smaller cranes. Main members were handled by the larger crane, using a 95-ft boom on the 493-ft. 6-in. spans and a 135-ft. boom on the 670-ft. span. Duplicate equipment was employed in the work on the Kentucky side.

Erection of Spans 3 and 7

Span 7 on the Indiana side and Span 3 on the Kentucky side were erected alike, supporting the first seven panels on timber falsework and proceeding by the cantilever process for the remaining five panels to the next pier. To make this possible a tower of two steel bents, supported on steel piles and provided with a jacking cap fitted with four 500-ton jacks, was erected at the end of the timber falsework and, in addition, provision was made for a hold-down rig by means of which the rear end of the span was anchored to four 12-in. by 1⅜-in. eyebars embedded to a depth of 18 ft. in the pier.

Span 6 was erected by the cantilever process, using Span 7 for the anchorage through the agency of eye-bar ties between the hip joints. However, an intermediate support was provided at the seventh panel point by a single steel bent like those used under Span 7, from which the cantilever erection was continued to the next pier. The span was brought to bearing by lowering the jacks on the steel bent. After that, jacks under the north end of Span 7 were raised sufficiently to release the tie bars connecting the two spans and finally the jacks were lowered to restore Span 7 to final elevation on the pier.

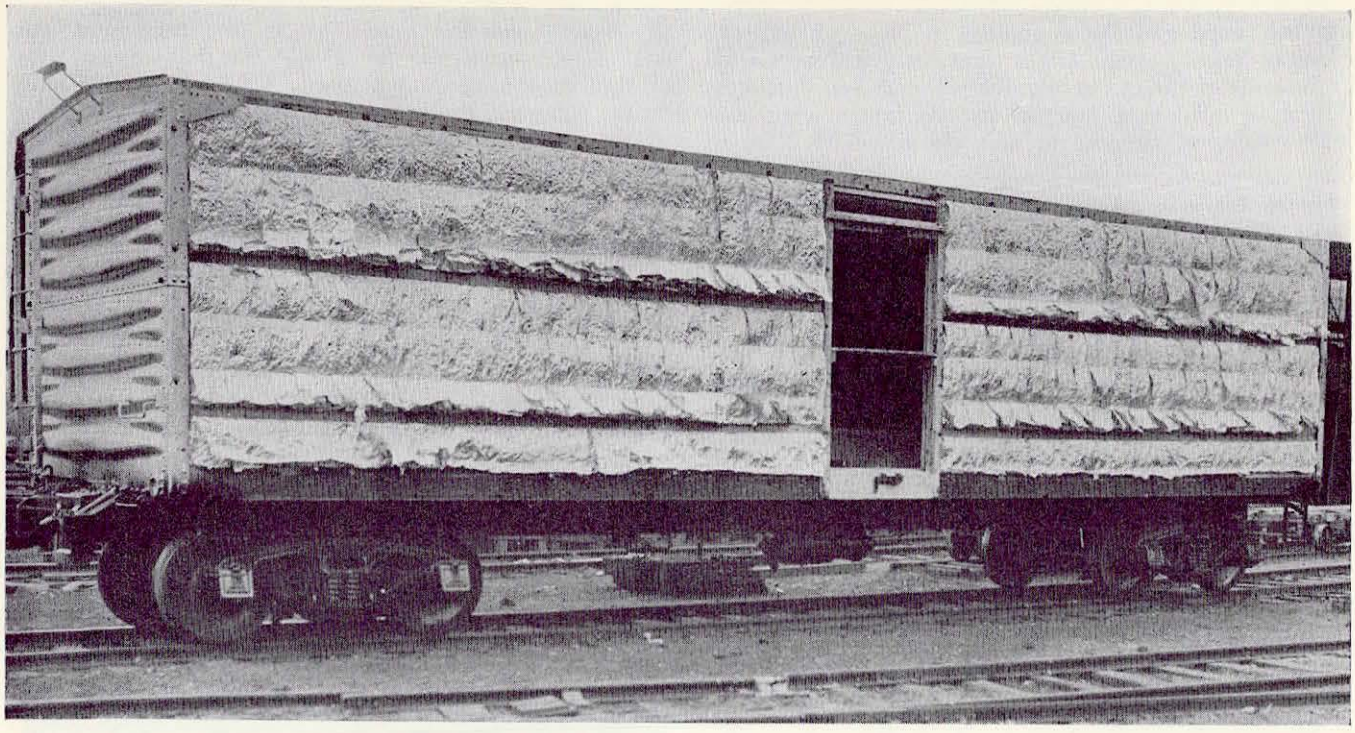
This same operation was repeated in the erection of Span 5, after which preparations were made for the erection of Span 4 by cantilevering from Spans 3 and 5. In this connection it is of interest to note that the same eye-bar rigs were used in succession for the erection of Spans 6 and 5 and for the north half of Span 4. These consisted of chains of two panel lengths of eye-bars supported at the intermediate panel point over the pier by temporary columns supported on brackets at the base of the end posts of one of the adjacent spans. The connection of the eye-bars to the hip joints of the trusses was made into exterior projections of the hip joint gusset plates which were later burned off. The difference in the length of the eye-bar chains required for the connection to the end of the 670 ft. span (4) was adjusted by a change in the lengths of the supporting columns at the "toggle" joint. These eye-bars carried a maximum stress of 8 million pounds at each corner of the span.

Erecting the Channel Span

Spans 3 and 5 were erected at final elevation, the elevation of the outer ends of the two arms of Span 4 being adjusted to compensate for cantilever deflection by a suitable shortening of the eye-bar ties. The closure of the top chords at mid-span was effected by jacking up the outer ends of the flanking spans; and after the top chord splices were completed, the ends of the flanking spans were lowered, thus forcing the closure of the bottom chords. Span 4 was then permitted to take the simple span deflection by a second raising of the flanking spans at their outer ends, whereupon the eye-bar ties were disconnected and Spans 3 and 4 restored to normal elevation. To avoid distortion of the floor system by reason of the shortening of the bottom chords of the through truss spans during cantilevering erection, all stringers were built ⅛ in. short of the computed no-load length and after the spans had been swung, ¼ in. shims were introduced on each side of alternate floor beams.

The work on the bridge was started on May 13, 1931, and the concrete work was finished on May 19, 1932. Steel erection was started on March 7, 1932, and completed on November 30, 1932, the bridge being turned over to traffic on January 1 of this year. The Missouri Valley Bridge and Iron Company, Leavenworth, Kan., had the contract for all substructure work from Pier 2 to the north end of the Indiana approach, as well as for the removal of the old piers, while the C. G. Kershaw Contracting Company, Birmingham, Ala., built the masonry for the underpasses through the south approach fill. The American Bridge Company fabricated and erected the entire superstructure except that of underpasses, which was erected by L. & N. forces.

The structure was designed by J. M. Salmon, bridge engineer of the Louisville & Nashville and C. K. Bruce, assistant bridge engineer, under the direct supervision of W. H. Courtenay, chief engineer. The construction was under the direction of G. G. Bryson, resident engineer, under the general supervision of G. R. Smiley, assistant chief engineer.



Alfol Insulated M. D. T. Car Showing Foil Insulation on the Side of the Car

M. D. T. Refrigerator Cars Insulated with Aluminum Foil

Material extremely light in weight, is unaffected by moisture and low in heat storage capacity

THE Merchants Despatch Refrigerator Line has recently completed the installation, in one of its cars, of an aluminum foil insulating material supplied by the Alfol Insulation Company, New York City. This principle of insulation was originally developed in Europe where, in several countries, over 1,000 refrigerator cars have been equipped with an insulating medium of this same general type. The characteristics of Alfol insulation may be summarized as follows:

1 High thermal efficiency (equal to cork).
2 Negligible weight (3 oz. per cu. ft. of insulation).
3 Impervious to moisture.
4 Low heat storage capacity.
5 Clean in application and use.

This type of insulation was first suggested and patented in Germany and is marketed in Europe and in America under the trade name of Alfol. Essentially, this type of insulation consists of multiple layers of aluminum foil, divided by air spaces. There are two general types of aluminum foil installations, known as the flat foil construction, in which successive layers of aluminum foil in flat sheets are built-up with spaces of either strips or corrugated material, and the crumpled foil construction such as is used in the Merchants Despatch refrigerator car, wherein the spacing is accomplished by the use of the foil itself. In this type of construction the foil is crumpled so as to produce irregular ridges and valleys throughout the sheet and thus provide its own spacing.

The aluminum foil for the crumpled type of Alfol insulation is .0003 in. in thickness and is embossed in a distinctive pattern providing minute corrugation in two directions. This particular pattern of embossing permits easy and uniform crumpling and the contacts between the successive layers of foil consist of a series of points rather than lines or surfaces. The transfer of heat by conduction through the metal foil is quite small because of the thinness of the foil and the limited area of contact. Bright polished aluminum reflects about 95 per cent of the radiant heat which falls upon its surface. Although other bright metals possess this same power to reflect radiant heat, alumium is preeminent for the production of insulation, because its bright surface is more permanent. Furthermore, because of the extreme lightness of aluminum approximately three times as much surface may be obtained from foil made of this metal than from an equivalent amount, by weight, of other metals.

Since this was the first refrigerator car insulated with Alfol in the United States, methods which had proved successful in Europe were used in making the installation. The crumpled Alfol is draped over 3/8-in. square sticks which are nailed to the underside of the belt strips. In this car the standard frame construc-

tion was used and Alfol applied in place of the materials ordinarily used. Eight layers of Alfol were used on the ends of the car to take the place of 3-in. thickness of flexible insulation material and six layers were used on the sides of the car to take the place of 2 in. of the usual insulation material. In the floor and the roof of this particular M. D. T. car the former type of insulation material was used, Alfol being used only on the sides and the ends. Because of the fact that one of the principal advantages claimed for the Alfol insulation is great reduction in weight, it is interesting to note that all of the Alfol insulation used in the sides and ends of the car weighs only 28 lb., by comparison with a weight of approximately 2,000 lb. for the insulating material ordinarily used in the sides and ends of this type of car. Aside from the saving in weight, Alfol insulation is said to be waterproof, odorless, verminproof, fireproof, unaffected by vibration, and low in heat storage.

Test to Determine the Relative Efficiency of Three Kinds of Insulation

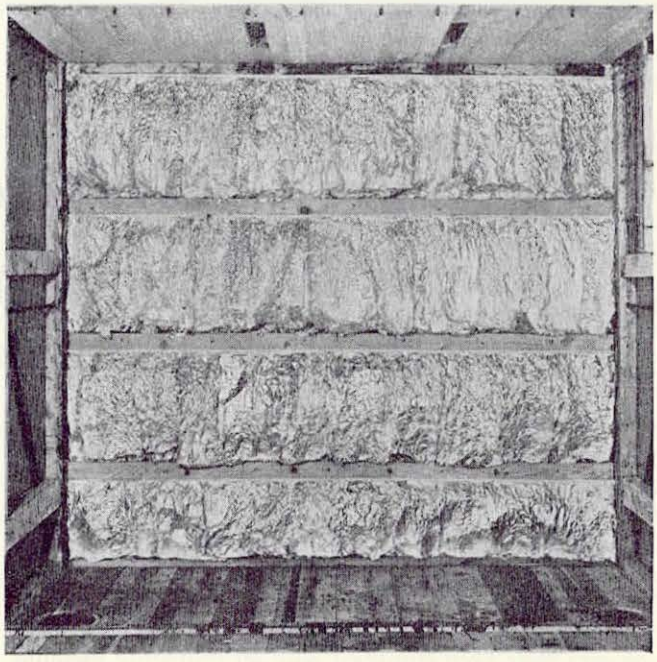
			Alfol M. D. T. 5999		Standard insulation used by M. D. T. M. D. T. 5998		M. D. T. 5225	
		U. S. Wea. Temp.	2 in. below ceil. 36 in. back doors	7 in. above floor racks 36 in. back doors	2 in. below ceil. 36 in. back doors	7 in. above floor racks 36 in. back doors	2 in. below ceil. 36 in. back doors	7 in. above floor racks 36 in. back doors
June 7	2 p.m.	57	74	74	74	74	74	74
	4	58	58	56	67	64	66	65
	6	55	53	46	59	49	61	51
	8	54	50	..	53	44	55	45
	10	52	47	..	50	42	51	43
June 8	12: mid.	51	45	..	47	41	48	41
	2 a.m.	48	43	..	45	40	46	40
	4	46	42	..	43	39	44	39
	6	47	41	..	42	38	42	38
	8	49	40	36	41	37	41	38
	10	51	40	36	40	37	40	37
	12 m.	56	40	36	40	37	40	37
	2 p.m.	60	40	36	40	37	40	37
	4	61	41	37	40	37	40	37
	6	59	41	..	41	37	40	38
	8	56	41	..	41	37	40	38
	10	54	41	..	41	37	40	38
June 9	12: mid.	53	41	..	41	37	40	38
	2 a.m.	51	40	..	41	37	40	38
	4	50	40	..	40	37	40	37
	6	51	39	36	40	37	40	37
	8	55	39	36	39	37	39	37
	10	61	39	36	39	37	39	37
	12 m.	64	39	36	39	37	39	37
	2 p.m.	65	40	36	40	37	39	37
	4	64	41	37	41	37	40	38
	6	67	42	37	42	37	40	38
	8	61	42	38	42	38	41	38
	10	59	42	38	42	38	41	38
June 10	12: mid.	57	42	..	42	38	41	38
	2 a.m.	54	41	38	41	38	41	38
	4	53	41	37	41	38	41	38
	6	55	40	37	41	38	40	37
	8	56	40	..	40	38	40	37
	10	56	40	..	40	37	39	37
	12 m.	61	40	36	40	37	39	37
	2 p.m.	62	40	36	40	37	39	37
	4	66	41	37	40	37	39	37
	6	68	42	37	41	37	40	38
	8	64	43	38	42	38	41	38
	10	60	44	38	43	38	42	38
June 11	12: mid.	55	43	38	43	39	42	38
	2 a.m.	51	43	38	43	39	42	38
	4	48	42	38	42	39	42	38
	6	50	41	37	41	38	41	38
	8	60	40	..	40	38	40	37
	10	69	40	..	40	37	40	37
	12 m.	73	40	..	40	37	39	37
	2 p.m.	74	41	..	40	37	39	37
	4	73	42	..	40	37	40	38
	6	73	43	38	42	38	41	39
	8	69	45	39	43	38	42	39
	10	67	46	40	45	39	43	40
June 12	12: mid.	64	46	40	45	40	44	40
	2 a.m.	61	45	40	45	40	44	39
	4	56	44	..	44	40	43	39
	6	59	43	..	43	39	43	38
	8	67	42	..	42	39	42	38
	10	72	41	38	41	39	41	38
	12 m.	76	41	38	41	38	41	38
	2 p.m.	77	42	38	41	38	41	38
	4	72	42	38	42	38	42	38
	6	68	44	39	43	39	42	39
	8	66	45	39	44	39	..	..
	10	64	45	40	44	39	..	..
June 13	12: mid.	61	45	..	44	39	..	..
	2 a.m.	61	44	..	44	39	..	..
	4	59	43	..	43	39	..	..
	6	59	43	..	43	39	..	..
	8	60	42	..	42	39	..	..
	10	62	42	..	42	39	..	..
	12 m.	66	41	38	41	39	..	..
	2 p.m.	66	41	38	41	38	..	..
	4	68	41	38	41	38	..	..
	6	67	41	38	41	38	..	..
	8	65	42	38	42	38	..	..

Icing Record

M. D. T. Car No.	Icing completed (June 7)	Lb. cake ice	June 13 6 p.m. ice down, in.
5999	3:30 p.m.	11,462	26½
5998	4:40 p.m.	11,478	25
5225	5:30 p.m.	11,031	25

Tests of Insulation

The illustrations show the method of applying the Alfol insulation. Upon the completion of M. D. T. car No. 5999 specific tests were run for a period of one week to determine the relative efficiency of three kinds of insulation; namely, Alfol and two kinds of standard insulation used in Merchants Despatch refrigerator cars. The results of these tests are shown in the table. This table gives temperature readings in cars insulated with three different types of insulation over a period of seven days and at regular intervals during each day. The table shows the temperature of the atmosphere outside the car and the temperatures from the time of icing the cars until the end of the test. The low heat storage capacity of the Alfol insulation is indicated by the greater rapidity of cooling in M. D. T. car No. 5999, as compared with the others.



Eight Layers of Alfol Insulation Were Used in the Car Ends

CZECHOSLOVAK STATE RAILWAYS were operating more than 300 bus routes with a total length of 8,127 kilometers, at the end of 1932 as compared with 81 lines with a length of 2,500 kilometers during the previous year, says a recent report to the U. S. Department of Commerce. A large number of these lines were formerly operated by the Czechoslovak post-office administration. In addition to the state lines, there were more than 23,000 kilometers of private bus lines operated in Czechoslovakia during 1932.

Solution Suggested for the Railroad Problem

Federal incorporation will make it possible to avoid government ownership

By Paul Synnestvedt
Philadelphia, Pa.

IT is well known that for some months past a considerable number of railroad corporations have not shown sufficient net earnings to cover fixed charges, let alone any dividends on stock. A considerable number of the companies have cut out not only the common dividend, but also the preferred dividend, and quite a few of them have negotiated loans from the Reconstruction Finance Corporation to meet their bond interest as it came due in order to avoid receivership.

It is clear that the time is not far distant when some of these loans, at least, will have to be repaid and there are fundamentally only two ways in which this can be accomplished; that is, either by a substantial increase in income or else by a sufficient reduction in operating costs.

The railroad is in a peculiar situation in the United States, different from the position of almost all other corporate organizations, since it has only a limited measure of control over its income and a restricted measure of control over its expenditures. The gross income is determined, of course, largely by the rates which it is allowed to charge and these are under the supervision and control of either the Interstate Commerce Commission or the various state railroad commissions, while, on the other hand, the labor costs are determined under certain laws and regulations which, in a large degree, destroy the free action of the railroads in this direction.

How to Avoid Government Ownership

The present situation is so bad that the country will shortly be faced with the necessity of choosing between government ownership on the one hand, or the introduction of some other plan under which the troubles can be overcome under private ownership and control subject to government regulation.

As a means for avoiding government ownership, I submit for consideration a few concrete suggestions, as follows:

First—Arrange for the Department of Commerce of the federal government to incorporate interstate transportation companies, granting charters for such purpose analogous, in many respects, to the charters granted for the operation of national banks. So far as may be necessary an enabling act granting such authority to the Department of Commerce should be passed by the Congress. There is ample authority for the law suggested in the existing Interstate Commerce clause, and the post road provision of the federal Constitution. On this see the following cases:

M'Culloch v. Maryland 4 Wheaton 316
Gibbons v. Ogden 9 Wheaton 187
Pac. R.R. Removal Cases 115 U.S. 1
Cal. vs. Pac. R.R. 127 U.S. 1
Luxton vs. North River 153 U.S. 525
Wilson vs. Shaw 204 U.S. 24-33

Such federal transportation corporations should have power to act either as operating or holding companies or both, and be authorized to purchase and hold the securities of any of the existing state transportation corporations, but preferably not of any other federal transportation corporation incorporated under such act. This would place the creation and control of the so-called holding companies under the federal government and remove from them the troubles incident to supervision and control by the 48 different states which would not have any further regulatory or control supervision over them than the states have over the national banks.

Control of Voting Stock

To avoid the pyramiding of one corporate structure upon another, which is such a common fault in the existing situation and has led to such great abuses in the past, it would seem wise to provide that the ownership of stock, or at least of voting stock in such federal transportation corporations, should be restricted to individuals or to investment organizations, such as insurance companies and savings banks, up to a limited percentage of the gross amount of capital stock of such federal transportation companies, say for example 5 per cent, or possibly more, as might be determined.

If some obstacle should appear to such a drastic provision in the limitation of stock ownership as suggested in these federal transportation companies, a somewhat similar result might be achieved by a provision that the stock of any such company while held for investment by some other corporate entity should not have the voting privilege That is to say that the voting privilege of the stock would be automatically suspended wherever it came into the possession of any other corporate entity.

The federal transportation corporation above suggested should have all necessary powers incident to such corporate organizations generally; that is, the right to issue either preferred or common stock or both as well as bonds, debentures or other obligations necessary to carry out the purposes of the charter and it should have the widest possible extension of authority to absorb and bring about consolidation of existing transportation corporations, subject only to limitations on its stock ownership above suggested.

The immunity which such a corporation incorporated under federal law would enjoy should afford a large inducement to financial interests seeking to effect consolidations to take out federal charters because, like the national banks, they would be answerable then, for the most part, directly to the federal government and not to the 48 different state authorities or the number of state authorities in which the subsidiary lines might lie.

Of course, local regulation in intrastate commerce would still rest with the states under their power of con-

trol of the state corporate entities, but the natural tendency would be to simplify the corporate structure in order to save expense and complication of administration so that, in course of time, the natural development would logically bring about the ownership and operation of the major transportation lines of the country by a few strong federally chartered organizations, privately owned, the stock of which would be an attractive and stable investment for the great mass of the people who could thus participate in the benefits and profits of these systems directly as stockholders instead of being driven to the adoption of the very objectionable government ownership plan with its enormous development of bureaucracy and entrenched political power in the federal government.

Scaling Down Fixed Charges

Another beneficial result that would be more or less automatically achieved would seem to be the gradual scaling down of fixed charges and simplification of corporate structures attained through the unified control exercised by the federal corporations.

To try to forcibly impose upon the existing transportation corporations, either by state law or national act of Congress, any requirement for drastic reduction in bonded indebtedness or the enforcement of any other drastic remedies for the existing unsatisfactory economic situation of the carriers raises a multitude of Constitutional questions. Such questions are of a most troublesome character affecting the rights of every individual holder of every issue of stock or bonds or other securities of these various different corporate entities. It would therefore seem that some such plan as is above suggested would be preferable to any such coercive legislation or enforcement of rules by the Interstate Commerce Commission or other established authorities, because it would bring about eventually the desired results by natural process based upon enlightened self interest which, in the long run, is necessarily one with the interest of the traveling public and the shippers, as well as of the employees of the transportation lines.

The great benefits of having the transportation system brought under control of a relatively small number of strong lines rather than a multitude of small weak systems are so well recognized no elaboration on this point is needed. The difficulty here has been largely one of ways and means and finance, and these difficulties have become so great in some instances as to delay the completion of some consolidation schemes for many years and to bring some of our leading railroad executives to the point of despair and a feeling that the only ultimate outcome would be government ownership.

Pressure for Government Ownership

It is realized by those who have studied the problem, that there is a steadily increasing pressure being brought to bear from different quarters to force the government to take over the railroads, not only for the operation of the same, as was done under the late lamented management of the director general of railroads, but the complete ownership as well as operation of the carrier lines.

It is clear to anyone who has made a study of constitutional government in a democracy that such an outcome of this railroad crisis would be most disastrous and yet it seems as if it would be practically inevitable unless some other feasible plan is put forward at an early date which will appeal to the mass of the people and meet the requirements of the situation.

It is a known fact that for some time there have been members on the Interstate Commerce Commission who have been friendly, at least, to the idea of government ownership. It is also known that this has been the attitude of some of the leading labor union executives, especially those connected with the railroad brotherhoods. There has even been a tendency during recent months on the part of some of the financial authorities in the country to favor government ownership as the only way out of the difficulties.

It is submitted that the plan above outlined provides a workable alternative which is far preferable. Under such plan the railroad would gradually come into the possession of the mass of the people as owners individually of the securities of the federal transportation corporations, and this would certainly be far better than having the government itself become owner of the lines with the responsibility of management and operation and the inevitable result of all such undertakings, i.e., paying for operating deficits out of increased taxes.

Advantages of Suggested Plan

Under the plan above suggested it would be relatively quite easy to bring about certain improvements under which the widening gap between receipts and disbursements could be substantially narrowed. Amongst these improvements might be mentioned:

First—Introduction of economies in operation, and

Second—Measures which will stimulate traffic.

To mention the second of these two propositions first, it is clear that the amount of travel and the quantity of freight handled is dependent, largely, upon general commercial conditions, but it is still a fact, not to be overlooked, that the quantity of traffic, especially in passenger service, can be increased by improving the quality and attractiveness of the service and, in some cases, lowering the expense so that the traffic, although conducted at a less cost per mile to the passenger, may return a larger gross than at the higher rates.

As to the means whereby the operating costs can be reduced, it is to be noted that amongst various suggestions which have been offered there are two worthy of special consideration. Much can be accomplished by the introduction of improved equipment, particularly up-to-date motive power which has been shown, by practical experience, to make substantial cuts in the cost of fuel, to speed up the movement of trains, to increase substantially the tonnage that can be hauled by a single locomotive with consequent reduction for a given tonnage movement of the cost of labor, since a single engine crew and train crew can take care of a much larger movement of goods or passengers. A substantial increase in the average speed of the train, such as is possible with modern equipment, also encourages travel and gives better satisfaction to shippers; it also reduces the amount of track and roadbed necessary to handle a given amount of tonnage.

All of these advantages are available to our carrier systems if they have the progressive management and financial ability to take care of the investments required.

As matters stand at present, it appears to be almost a hopeless task for the railroads to float the large additional amount of securities which would have to be put out to raise the necessary funds to meet all the requirements of the existing situation. For years it has been the practice of many of the railroads, due to causes which in a sense were beyond their control, to issue bonds without any provision for suitable sinking funds and to take care of maturities by new issues of bonds from time to time. This, of course, amounts to nothing more than borrowing from another source sufficient money to pay previous debts. The bond issues are out

of all proper proportion to the stock issues and any attempt at present to market additional railroad stock would be treated as a joke in a financial market.

If a limited number of good strong consolidated companies could be chartered under the federal government, as suggested, the much desired railroad consolidations would be greatly facilitated. Effort in this direction on a limited scale has been attempted in some instances through state chartered organizations, such, for example, as the Chesapeake Corporation and the Pennroad Corporation. There has been a great outcry in some quarters against these holding companies and talk of placing them under control of the Interstate Commerce Commission or, in some instances, taking steps to eliminate them from the picture altogether.

It seems to me what is really needed is rather the legalization and encouragement of a suitably constructed number of strong holding companies, or, more properly, consolidation corporations, chartered under federal law as above suggested which eventually could exercise absolute control and direction over the properties which they might acquire. For the time being the state chartered operating companies could be continued in existence, but the whole structure gradually brought into an orderly and efficient form.

There is no question but what there is an imminent crisis in the status of the transportation systems of the United States and forward-looking authorities are, for the most part, agreed that some changes in our system must be made, and that at once if things are to be made right and the enormous investments in our transportation lines held by the insurance companies, saving banks and other fiduciary institutions are to be safeguarded and the general public encouraged to make such further investments as will be needed from year to year to keep the systems operating on an efficient and satisfactory service basis.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended April 22 totalled 492,970 cars, a decrease of 1,245 cars as compared with the week before and of 69,557 cars as compared with the corresponding week of last year. L. C. L. merchandise, coal, and coke showed decreases as compared with the week before but other commodity classifications showed increases, and grain and grain products showed an increase as compared with last year. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

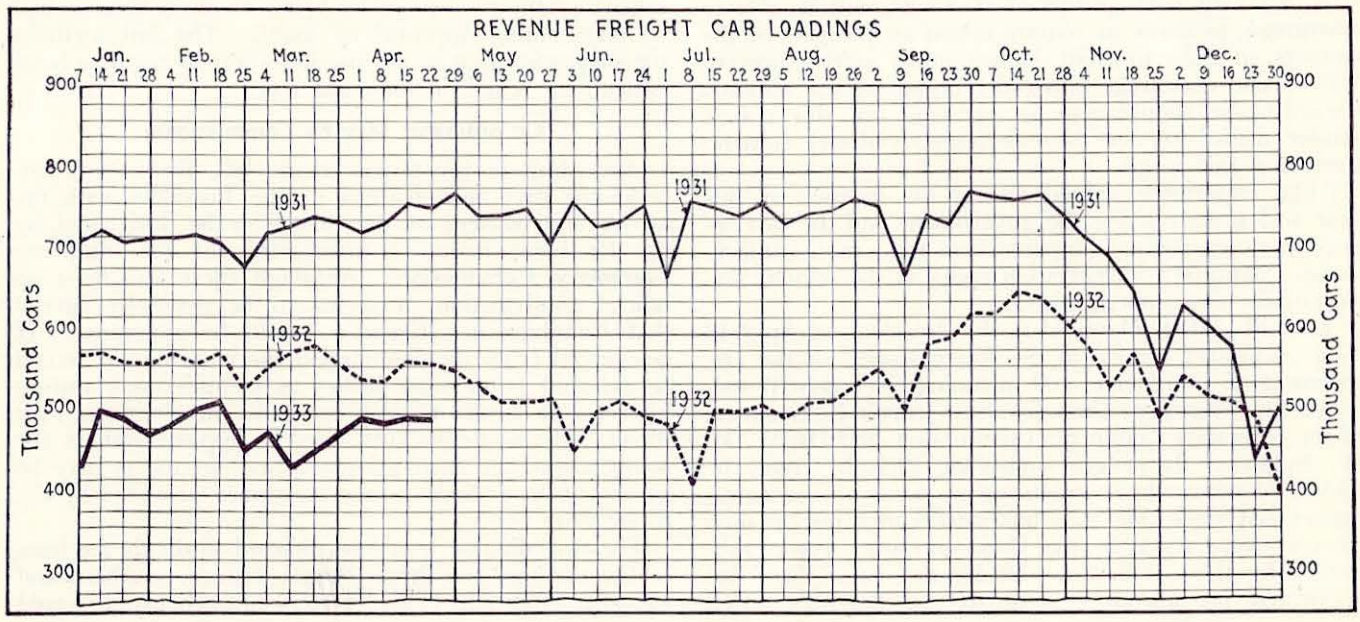
Week Ended Saturday, April 22, 1933

Districts	1933	1932	1931
Eastern	108,987	134,071	177,561
Allegheny	89,841	115,643	157,321
Pocahontas	32,416	34,825	41,735
Southern	82,219	85,254	119,395
Northwestern	59,612	63,540	88,164
Central Western	73,823	82,978	108,633
Southwestern	46,072	46,216	65,694
Total Western Districts	179,507	192,734	262,491
Total All Roads	492,970	562,527	758,503
Commodities			
Grain and Grain Products	34,733	31,286	37,399
Live Stock	16,674	20,297	23,154
Coal	72,789	93,075	112,784
Coke	3,039	3,601	6,215
Forest Products	16,941	19,806	32,621
Ore	3,424	4,946	9,367
Mdse. L. C. L.	160,132	185,142	224,137
Miscellaneous	185,238	204,374	312,826
April 22	492,970	562,527	758,503
April 15	494,215	566,826	759,494
April 8	487,296	545,623	737,272
April 1	494,588	544,961	727,852
March 25	475,850	561,118	738,880
Cumulative total, 16 weeks	7,678,748	9,010,766	11,627,379

Car Loading in Canada

Car loadings in Canada for the week ended April 22 not only showed an increase over the previous week, which contained a holiday, but the index number rose from 57.34 to 59.44. Total loadings amounted to 34,156 cars, or an increase of 4,020 cars as compared with the previous week.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
April 22, 1933	34,156	17,086
April 15, 1933	30,136	17,382
April 8, 1933	32,370	17,885
April 23, 1932	41,689	21,635
Cumulative Totals for Canada:		
April 22, 1933	192,843	11,562
April 23, 1932	230,929	20,290
April 18, 1931	240,346	28,203



President Roosevelt Approves Transportation Bill

Emergency Transportation Act of 1933 designed to assist railways while awaiting the Transportation Act of 1934

WASHINGTON, D. C.

PRESIDENT Roosevelt's Emergency Transportation Act of 1933, designed to assist the railroads to reduce somewhat their operating expenses and fixed charges while awaiting the Transportation Act of 1934, and at the same time to repeal some of the most important features of the 1920 law, was submitted to Congress on Thursday, accompanied by a message from the President expressing his advocacy of the plan for the appointment of a Federal Co-ordinator of Transportation.

President Roosevelt's Message

The President said:

"The steam railways still constitute the main arteries of commerce in the United States. At this time, however, available traffic is not sufficient profitably to utilize existing railway facilities and the supplementary facilities provided by new forms of transportation. Our broad problem is so to co-ordinate all agencies of transportation as to maintain adequate service. I am not yet ready to submit to the Congress a comprehensive plan for permanent legislation. I do believe, however, that three emergency steps can and should be taken at this special session of the Congress.

"First, I recommend the repeal of the recapture provisions of the Interstate Commerce Commission Act. The Commission has pointed out that existing provisions are unworkable and impracticable.

"Second, railway holding companies should be placed definitely under the regulation and control of the Interstate Commerce Commission in like manner as the railways themselves.

"Third, as a temporary emergency measure, I suggest the creation of a Federal Co-ordinator of Transportation who, working with groups of railroads, will be able to encourage, promote or require action on the part of the carriers, in order to avoid duplication of service, prevent wastes, and encourage financial reorganizations. Such a Co-ordinator should also, in carrying out this policy, render useful service in maintaining railroad employment at a fair wage.

"The experience gained during the balance of this year will greatly assist the government and the carriers in preparation for a more permanent and a more comprehensive national transportation policy at the regular session of the Congress of 1934."

The bill is that submitted to the President on April 18 by a committee headed by Secretary Roper, of the Department of Commerce, and including Secretary Woodin, of the Treasury; Commissioner Joseph B. Eastman, of the Interstate Commerce Commission, and Dr. W. M. W. Splawn. It differs somewhat verbally from the earlier tentative draft published in some of the newspapers last week, but it is understood that few, if any, changes were made by the President after it was submitted by the committee. Under the "new deal" inaugurated on March 4 most of the hearings which usually precede Congressional legislation have already been held by the committee, although not in public, so that fairly prompt action on the bill is expected in Congress.

Its provisions indicate that several concessions have been made as the result of representations made by representatives of the labor and shipper organizations, security owners and railroad executives during the weeks it has been under consideration. These include the provision for a review or suspension by the Interstate Commerce Commission of any order of the co-ordinator upon petition of any carrier, shipper or employee interested, and that under which the co-ordinator is to "confer freely" with committees representing railway labor organizations before issuing any orders requiring changes in service or operation which will affect the interest of the employees.

Legal Restraints May Be Lifted

Moreover, while provision is made for an exemption of carriers from the operation of the anti-trust laws and from the restraints or prohibitions of other laws, when necessary to comply with orders of the co-ordinator, an exception is made as to the railway labor act.

Contrary to some expectations, although one of the stated purposes of the bill is to promote financial reorganizations of the railroads, the co-ordinator is given no powers in that respect nor relating to loans from the R. F. C. Such powers are left with the Interstate Commerce Commission, which is directed not to approve a loan nor authorize an issue of bonds or other evidence of indebtedness if it believes a carrier ought to go through reorganization. Seemingly the commission already has such power and it has in several instances caused preliminary steps to bring about reorganization by withholding approval of loans. The bill includes the suggestion that it also use its power to regulate bond issues as a "club" in the same way.

Co-ordinator May Be Commissioner

According to the terms of the bill, the federal co-ordinator may be appointed by the President with the advice and consent of the Senate or be designated by the President from the membership of the Interstate Commerce Commission. Although there has been no official confirmation, it seems to be generally agreed that Commissioner Eastman would be appointed. If designated from the commission the co-ordinator would be relieved from other duties as commissioner during his term of service to such extent as the President may direct. He would be authorized to appoint and fix the compensation of such assistants and agents as may be necessary, in addition to the assistance provided by the commission.

The co-ordinator would be directed to divide the lines of the carriers into three groups, eastern, southern and western, after which the carriers in each group would

create three regional co-ordinating committees of not more than five members each.

The purposes of the act are stated to be three-fold: (1) To encourage and promote or require action on the part of the carriers which will (a) avoid unnecessary duplication of services and facilities of whatsoever nature and permit the joint use of terminals and trackage incident thereto or requisite to such joint use, (b) control allowances, accessorial services and other practices affecting service or operation, to the end that undue impairment of net earnings may be prevented, and (c) avoid wastes and preventable expense; (2) to promote financial reorganization of the capital structure of carriers so as to reduce fixed charges; and (3) to provide for the immediate study of other means of improving transportation conditions and the preparation of plans therefor. Both Rayburn bills are included in the new bill.

The first purpose is to be accomplished largely in the first place by the regional committees, upon whom would be imposed the duty of carrying out the purposes stated in subdivision (1) so far as action can be voluntarily accomplished by the carriers. In such instances as the committees are unable for any reason, legal or otherwise, to carry out such purposes by voluntary action, they would recommend to the co-ordinator that he give appropriate directions to the carriers by order, and he would be authorized and directed to issue and enforce such orders if he finds them to be consistent with public interest and in furtherance of the purposes of the act. Such orders would remain in effect until vacated by him or suspended or set aside or modified by the Interstate Commerce Commission.

The co-ordinator would be directed to confer freely with the committees and give them the benefit of his advice and assistance in administering the authority granted them. If in any instance a committee should fail to act with respect to a matter which the co-ordinator had brought to its attention and upon which he was of the opinion that it should act, he would be authorized and directed to issue and enforce such order, giving appropriate directions to the carriers. It is also proposed that his order may provide for the creation and administration of such just pooling arrangements or for such just compensation as he may deem necessary or desirable.

Any interested party, whether carrier, shipper or employee, dissatisfied with any order of the co-ordinator may file a petition with the commission asking that such order be reviewed and suspended pending such review. If the commission finds reason to believe that the order may be unjust to the petitioner or inconsistent with the public interest, it would be authorized to grant such review, and, in its discretion, to suspend the order if it finds that immediate enforcement would result in irreparable damage to the petitioner or work grave injury to the public interest.

The carriers affected by any order of the co-ordinator or commission made pursuant to the act would, so long as the order is in effect, be relieved from the operation of the anti-trust laws and of other restraints or prohibitions by law, state or federal, in so far as may be necessary to enable them to do anything authorized or required by such order. A proviso, however, states that nothing in the act shall be construed to repeal, amend, suspend or modify any of the requirements of the railway labor act or the duties and obligations imposed thereunder or through contracts entered into in accordance with the provisions of that act.

Penalties ranging from $1,000 to $20,000 for each day are proposed for willful failure or refusal of any carrier or officer or employee of any carrier to comply with the terms of any order of the co-ordinator.

I. C. C. May Force Reorganization

The second purpose of the bill, to bring about reduction of fixed charges, is to be accomplished through the exercise of the powers of the Interstate Commerce Commission, which would be directed not to approve a loan to a carrier under the Reconstruction Finance Corporation Act, nor authorize a carrier to issue bonds or other evidence of indebtedness, unless it shall find that the financial structure of the carrier is such that there is reasonable prospect that it can without reorganization survive the economic depression and provide for its capital needs thereafter.

Co-ordinator to Recommend Plans for Future

The third object, to provide for a study of transportation with a view to the future, is covered by a section making it the duty of the co-ordinator to investigate and consider means not provided for in this act for improving transportation conditions throughout the country, and to submit from time to time such recommendations to the commission calling for further legislation as he may deem necessary or desirable. The commission would be directed to promptly transmit such recommendations with its comments to the President and to Congress.

The expenses of the co-ordinator, except so far as they are borne by the commission, would be met out of a fund obtained from assessments on the carriers.

One section of the bill states that the co-ordinator shall provide means whereby central committees selected by and representing railway labor organizations in each of the groups shall be advised of any contemplated orders requiring changes in service or operation which will affect the interest of the employees, and that he shall confer freely with such committees before issuing any such order.

The act is to have effect only for one year unless the time is extended by a proclamation of the President for a year or any part of a year.

Plan Only Temporary

Although the railroad bill went to Congress just as it was completing its work on the comprehensive bill delegating to the President authority to inflate agricultural prices, credit, currency and almost everything else, its tendency is deflationary, as it is intended to reduce railroad expenditures as well as the bonded indebtedness of many railroads at the same time the government seems to have embarked upon a policy of reducing the value of money.

The bill is proposed as only temporary legislation to effect some economies so that railroads will not have to borrow too much money from the R. F. C. until time is afforded for working out a more permanent plan for improving the transportation situation, perhaps at the next session of Congress. There seems to be no intention of cutting off loans altogether, because, although for the first three months of this year the R. F. C. made no new loans to railroads which had not received loans last year, it has recently authorized new loans to several railroads which had not been on its list before, and A. A. Berle, one of the President's personal advisers, has recently been appointed special assistant to the directors of the R. F. C. to advise them on railroad loans. Jesse H. Jones, director of the R. F. C., in an address last week discussed the railroad loan situation as follows:

"Our loans to railroads, of approximately $350,000,000, are considered by some as more or less doubtful,

but, in my own opinion, most of these loans will either be collected or put on an entirely sound basis through railroad reorganization. It is not unlikely that when these reorganizations are undertaken, the Reconstruction Finance Corporation may be called upon to furnish additional funds, and in doing this, these new funds, as well as previous advances, could become preferred claims.

"Some of our railroad loans, in my own opinion, have been wisely made and some not, but undoubtedly the Reconstruction Finance Corporation can be helpful in reorganizing railroads and in putting their capital structures on a sounder basis. Indeed, until the investing public can be brought back into the bond market, it will be necessary for the government to furnish them with credit. I can conceive of the necessity and the desirability of the government taking a strong position in financing the railroads. This can be safely done under the proposed co-ordination to effect economy."

Plans for additional transportation legislation at the next session of Congress will doubtless depend to a considerable extent upon the recommendations to be made by the co-ordinator in connection with his investigation and the comments of the I. C. C. upon them which are to be transmitted to the President and to Congress. Heretofore recommendations of the commission for legislation, as well as its reports in general, have been made to Congress alone and not to the President.

While the bill proposes to give to one member of the I. C. C., in effect, power to set aside the restrictions of the anti-trust law, the interstate commerce act, or other state and federal laws, except those for the protection of public health and safety, it also provides that his orders may be reviewed or suspended by the other commissioners. This paves the way for more expeditious action than is ordinarily possible under commission procedure and would do away with the necessity for so many hearings before a new course of action can be put into effect, but another opportunity for delay is afforded by the requirement that labor committees shall be consulted before anything can be done.

The bill includes repeal of the rate-making and recapture provisions of the interstate commerce act and substitution of the new flexible rule of rate-making for the fair-return-on-value rule on which hearings have already been held by both House and Senate committees. It also includes provision for the winding up of the commission's valuation work, which is recognized in the reduction of the appropriation for valuation in the independent offices valuation bill to $1,000,000 for the fiscal year 1934. Another part of the plan is the Rayburn bill to include all acquisitions of control of railroads, by holding company or otherwise, under the jurisdiction of the Interstate Commerce Commission.

Chairman Dill of the Senate committee on interstate commerce, has announced his intention of having about three days of hearings on the bill next week, at which Commissioner Eastman will probably be the principal witness and which will give the labor organizations opportunity to ask for changes in the bill. The House committee on interstate and foreign commerce may also desire to hold hearings.

I. C. C. Reorganization May Be Postponed

Secretary Roper's plan for reorganizing the Department of Commerce and transferring to it a number of the Interstate Commerce Commission's bureaus on the theory that they are "administrative" is still awaiting further consideration by the President and Director Douglas of the Bureau of the Budget but it has encountered so much opposition that there is a strong belief in Washington that it will be postponed.

Labor Executives Oppose Bill

The Railway Labor Executives Association at a meeting in Washington on April 28, issued a statement saying in part: "We are thoroughly opposed to the prospective railroad legislation. We see no justification for drastic reductions of essential transportaton service in order that unearned interest may be paid on idle capital. Communities deprived of adequate and competitive rail transportation will be further depressed. Thousands of railway workers will be added to the bread lines. Economic recovery will be retarded by this further deflation of business and labor.

"We do not believe that the American people will approve of setting aside the anti-trust laws and other state and federal laws enacted to protect public interest merely in order to permit monopolized railroads to gather unjust and unearned profits. If we have reached the end of railroad competition we have arrived at the necessity for immediate, complete and direct public control. Communities, shippers, and employees threatened with irreparable losses, should be able to prevent the passage of such a law as now proposed. But at least the organized railway employees will do all within their power to have written into any new law adequate protection for approximately 2,000,000 workers dependent for a livelihood upon the railroads and allied transportation services. We shall insist that unemployed workers be given even more tender consideration than unemployed capital. We shall insist that this intolerable deflation of labor by cutting down jobs and wages, deepening the depression and steadily degrading the standards of American life, must stop.

"Those who assume responsibility for taking away employment must accept the obligation to provide employment or support for the men they force into idleness. Again and again we have pointed out that all property values rest upon the earning power of the masses of the people. Deflation of labor brings first deflation of capital and then confiscation. The railroad economy program will not save the railroads. It is another measure of that false economy which is destroying the railroads and the other industries of America. Saving money and starving men is the road to ruin. Spending money and saving men is the road to national recovery."

Improvements in Operating Efficiency and Wage Reductions enabled the Commonwealth Railways of Australia to reduce their operating deficit for the year ending June 30, 1932, by £71,792 or 48.03 per cent as compared with the loss from operations during the year ending June 30, 1931. The 1931-32 gross revenues were £280,107, reflecting a decrease of £29,027 or 9.39 per cent from the 1930-31 gross; operating expenses were at the same time reduced by £100,819 or 21.98 per cent and thus the operating deficit was cut from a 1930-31 figure of £149,487 to £77,695 in 1931-32. Wage adjustments, the report says, saved only £29,777 during the year under review and the remainder of the reduction in expenses—£71,042—was due to improved methods of working and the closest possible scrutiny over every item of expenditure." Interest charges, however, still remain a burden since, during the past few years, they have exceeded gross revenues. Thus with 1931-32 interest charges of £470,098 the year's net deficit was £547,793 as compared with a net deficit of £641,291 in 1930-31.

Bledsoe Succeeds Storey on Santa Fe

Retirement of W. B. Storey as president followed by election of Samuel T. Bledsoe, general counsel and chairman of executive committee, as his successor

W. B. STOREY, president of the Atchison, Topeka & Santa Fe, has retired from active service, terminating an association with the Santa Fe which began in 1895 and culminated in 1920 in his election to the presidency. Samuel T. Bledsoe, general counsel of the Santa Fe and chairman of its executive committee, has been elected president to succeed Mr. Storey. The retirement of Mr. Storey and the election of Mr. Bledsoe took place at a meeting of the board of directors of the railway in New York on May 2.

W. B. Storey

S. T. Bledsoe

Only two men have occupied the presidency of the Santa Fe since 1896 when it began its long climb to a position of prominence as one of the leading railroads in the United States, in extent, in operating efficiency and in earning power. The first of these men was the late E. P. Ripley to whom the greater part of the rehabilitation of the Santa Fe is credited. The other is Mr. Storey who succeeded Mr. Ripley in the presidency of the road after playing an important part for years in carrying out the Ripley policies, and who brought to successful conclusion the program of improvement and development laid down by his predecessor.

It was only a few years after Mr. Storey's election to the presidency that the Santa Fe conclusively demonstrated its outstanding earning power. In 1918, when he first took charge of the railway as federal manager under the United States Railroad Administration, the gross revenues of the system were $191,509,795. The expenses, including taxes, were $151,465,171 and interest on the funded debt amounted to $11,696,191, leaving a corporate net income of $28,348,432. In 1926, gross revenues had reached $265,929,839, and the net corporate income had reached the new high level of $60,631,494. Even this record was exceeded in 1929 when, out of gross revenues of $273,866,455, there remained a net corporate income of $61,036,803 after all expenses and interest.

An outstanding railroad executive, Mr. Storey, as president of the Santa Fe, pursued a policy of steady expansion into new traffic-producing territory and of constant physical improvement of the property, and he carried out this program with a marked degree of financial conservatism. More than 2,000 miles of lines were added to the system between 1918 and 1932, most of it in the fast-developing sections of the Southwest. The Kansas City, Mexico & Orient was acquired in 1929, adding a new feeder line to a railway which has been most notable for its characteristics as a strong trunk line with many strategically-located feeders. Improvements to the property were made on a system-wide scale, including many miles of second main tracks, grade reduction, the purchase of modern equipment and the construction of new buildings and structures of many kinds, so that from a physical and an operating standpoint, the Santa Fe would not suffer by comparison with any other railway in the country.

These improvements have been paid for, as a matter of conservative policy, largely out of earnings. The

extraordinary earnings of the company have been plowed back into the property, making it a larger, better equipped and better maintained railroad with almost no increase in its annual interest charges. The dividend policy of the company, while generous, has been conservative. Five per cent dividends have been paid annually on the preferred stock, while dividends on the common stock were increased from 6 to 7 per cent in 1925, raised to 10 per cent by means of a 3 per cent extra dividend in 1927, and established at 10 per cent regularly in 1928, where they remained through 1931.

While the Santa Fe, in common with all other railways, has suffered severely from the long-continued business depression, it has kept its head well above water. The net corporate income of the system in 1932 was $7,545,007, gross revenues having declined to $137,205,652, with expenses of $116,856,332 and interest of $12,804,313. In spite of the low ebb of its traffic, Mr. Storey has operated and maintained the Santa Fe at a level of efficiency such that it will be immediately ready to handle and benefit from the recovery of traffic in the revival of general business.

W. B. Storey

William Benson Storey was born in San Francisco, Cal., on November 17, 1857, being graduated from the University of California in 1881. Even previous to that time he had begun railway service as an axman on the Central Pacific (now part of the Southern Pacific) during his summer vacations. Subsequent to his graduation from the university, he served the Central Pacific as a rodman, instrumentman and chainman, his work in the engineering department winning him promotion in 1883 to the position of assistant engineer on construction. In 1885, he became a member of an engineering firm in San Francisco, returning to the Southern Pacific in 1886 as an assistant engineer. For a year, beginning in 1894, he served as assistant engineer of the U. S. Debris Commission, returning to railroad service in 1895 as chief engineer and general superintendent of the San Francisco & San Joaquin Valley, which line was taken over by the Santa Fe. In 1900, he was appointed chief engineer of the Eastern Lines of the Santa Fe. Promoted to chief engineer of the system in 1906, he was three years later appointed vice-president in charge of construction. A year later, in 1910, Mr. Storey was advanced to the vice-presidency in charge of operation and construction, holding this position until 1918 when he was named federal manager of the railway for the United States Railroad Administration. He was elected to the presidency in 1920.

Samuel T. Bledsoe

Samuel Thomas Bledsoe was born in Clinton County, Ky., on May 12, 1868, and received his education in the Southern Normal School and Business College at Bowling Green, Ky., and at the University of Texas. He practiced law at Sherman, Tex., in 1890 and later in the same year transferred his practice to Ardmore, Indian Territory (now Oklahoma). In 1908, he moved to Guthrie, Okla., and in 1911 to Oklahoma City, continuing his law practice. His first railroad service began in 1895, when he served as local attorney of the Gulf, Colorado & Santa Fe at Ardmore. In 1908, he was named solicitor in Oklahoma for the railway, being promoted to general attorney in 1912. Mr. Bledsoe was made assistant general solicitor of the Santa Fe in 1915, with headquarters at Chicago, and was promoted to general counsel in 1918. His election as chairman of the executive committee came in 1930.

The Union Pacific in 1932

THE UNION PACIFIC in 1932 had total income of $36,448,276 before charges, which latter amounted to $15,448,276; charges were earned, therefore, 2.3 times, a most extraordinary record for the times. Preferred and common dividends, totaling $19,542,094, were paid during the year, the rate on the common stock being reduced from 10 per cent annually after the first quarter to 6 per cent. Selected revenues and expenses figures, comparing 1932 with 1929, are given in Table I.

It will be noted, while the decline in freight revenues was 45.5 per cent, that the fall in passenger receipts was much more severe. Total operating revenues fell off by 47.2 per cent and operating expenses were reduced almost as much—46.3 per cent. Transportation expenses were reduced almost 40 per cent, but, naturally, the ratio of the decrease in the maintenance department was greater. Federal taxation, due to an adjustment, showed a small credit.

Table I—Union Pacific System, Revenues and Expenses 1932 and 1929 Compared

	1932	1929	Per Cent + Increase − Decrease
Freight Revenue	$93,640,661	$171,745,751	−45.5
Passenger Revenue	10,414,277	26,323,718	−60.4
Total Operating Revenue	114,812,397	217,356,592	−47.2
Maintenance of Way Expenses	10,240,310	28,246,009	−63.8
Maintenance of Equipment Expenses	19,218,329	38,283,100	−49.8
Transportation Expenses (Rail Line)	37,998,312	62,638,350	−39.3
Total Operating Expenses	78,983,117	147,026,561	−46.3
Net from Railway Operation	35,829,279	70,330,031	−49.1
State and County Taxes	10,721,033	11,988,300	−10.6
Federal Taxes	(1) 129,996	5,101,268	−102.5
Net Railway Operating Income	18,012,536	45,325,568	−60.3
Income from Investments	18,435,739	21,598,472	−14.6
Total Income	36,448,276	66,924,041	−45.5
Fixed Charges	15,813,378	17,667,998	−10.5
Net Income	20,634,888	49,256,042	−58.1
Dividends	(2) 19,542,094	(3) 26,210,884	−25.4

(1) Credit; (2) 4% on Preferred, 7% on Common; (3) 4% on Preferred, 10% on Common.

The financial strength of the Union Pacific has long been recognized. Indeed it has been referred to as not only a railroad but an investment trust as well. Its total investments in road and equipment at the end of 1932 totaled, in round numbers, 880 millions of dollars, while its investments in other and affiliated companies brought the total of investments up to, approximately, 1138 millions. Net railway operating income in 1932 totaled slightly more than 18 millions which alone was more than sufficient to pay fixed charges, but the company had an

Table II—Union Pacific System, Selected Operating Statistics, 1932 and 1929 Compared

	1932	1929	Per Cent + Increase − Decrease
Freight Train Miles	15,817,924	22,629,197	−30.1
Freight Locomotive Miles	18,068,421	26,549,944	−32.0
Ton-Miles Revenue Freight (thousands)	7,982,255	14,430,923	−44.7
Average Haul (miles)	409	398	+2.8
Average Revenue per Ton-Mile (cents)	1.158	1.172	−1.2
Average Net Tons per Train	609	752	−19.0
Percentage Loaded to Total Car-Miles	61.66	65.33	−5.6
Revenue Passengers Carried One Mile	431,062,420	894,452,892	−51.8
Average Revenue per Passenger-Mile (cents)	2.381	2.895	−17.8
Average Passengers per Train	37.55	47.76	−21.4
Average Passengers per Car Mile	6.52	8.94	−27.1
Average Miles per Hour, Freight Trains*	20.2	17.3	+16.8
Net Ton-Miles per Train-Hour*	13,533	13,747	−1.6
Lb. Coal per 1000 Gross Ton-Miles*	112	109	+2.8

* Union Pacific R. R. Only.

additional income of almost 18½ millions from investments. The corporate surplus at the end of the year totaled approximately 326 millions, exceeding the par value of outstanding stock by about five million dollars.

Of the income from investments in 1932, dividends accounted for approximately 12 millions and interest for 5.5 millions. The principal source of the dividend income was the Pacific Fruit Express, of the capital stock of which the Union Pacific owns 120,000 shares, which yielded it 10.1 millions in dividends. The principal change in the company's investments during the year was the sale of 67,152 shares of New York Central capital stock (par $100) and the purchase of 100,000 shares of Pennsylvania stock (par $50).

In Table II are shown comparisons of selected operating statistics for 1932 and 1929. The decline in the average train load, to be expected with such a severe loss of business, will be noted. Net ton-miles per train-hour, however, receded but slightly due to an increase in average train speed from 17.3 to 20.2 miles per hour. This greater speed and the decline in the size of trains will account for the fractional increase in fuel consumption per 1000 gross ton-miles. The falling off in passenger business in spite of a material reduction in the average rate and the low volume to which average passengers per car has fallen are arresting in their severity. The management is meeting this situation firmly, however, and reduced passenger train mileage by 33 per cent and rail motor car mileage by 23 per cent under the totals for 1929.

The company expended approximately 3½ millions on additions and betterments during the year, the largest single item being for line and grade revision, 1¼ millions. The largest project of this character was a 7.5-mile cut-off built to avoid operation through the streets of Long Beach, Cal. A train dispatching telephone circuit was installed on the engine district between Junction City, Kan., and Ellis and 18 dining cars were air-conditioned.

The Union Pacific, due to its extremely conservative capitalization, its favorable operating conditions and the vigilance of its management, quite apparently was outstandingly successful in weathering 1932, and any brightening in the economic skies will quickly be reflected in its operating results.

Transportation Yet to Come

DR. JULIUS H. PARMELEE, director of the Bureau of Railway Economics, addressed the Pittsburgh Railway Club on April 27 on the subject "Whither In Transportation", discussing it under the heads of "transportation past", "transportation present", and as a dream of "transportation yet to come". Following his review of past developments and the present situation Dr. Parmelee's vision of 1933 and future years as seen looking backward from 1950 was in part as follows:

I dreamed another dream, in which the future of American transportation seemed to unroll before my eyes. In fact, I was in the year 1950, and was looking back at the panorama of events from 1933 to that date.

Let us review this panorama together. Remember that we are now looking back to 1933. So looking back, it was manifest that the most hopeful element in that year was the intelligent and sympathetic interest the American people were beginning to give to transportation and its future. This attention to transport matters was founded on the realization that the public interest and the interest of railway transport were one and inseparable, and that what affected one adversely was a serious blow at the other.

The Interstate Commerce Commission had sensed this hopeful change in the state of the public mind when they said in their annual report for 1932:

"More or less aimless concern over the future of the railroads is rapidly being replaced by intensive study directed toward ways and means of improving the situation."

Again, the public in 1933 was comforting itself with the thought that the United States had passed through several depressions in its history, and had always emerged stronger in every way than before. The pessimistis scoffed at this notion, just as the optimists in early 1929 ridiculed the idea that prosperity might not continue in an ever upward spiral. Both groups were of course wrong, the optimists of 1929 and the pessimists of 1933. But the pessimism continued nevertheless.

Other hopeful signs were the transportation studies made in that year by the National Transportation Committee, by the Joint Committee of Railroads and Highway Users, and by government officials and advisers. Their effort was not only to find a way out for the railways, but to effect such a coordination of the several transport agencies as to preserve their best features and at the same time promote the public interest. While some of the recommendations resulting from these studies were not and could not be adopted, they supplied food for thought, and undoubtedly aided in the effort to work out practical solutions.

Among other things, the American people in 1933 were beginning to realize that the effort to restrict production, especially in the case of farm commodities, was an approach from the wrong end. Rather was it the solution to increase the effective demand for goods the world over, and so absorb the growing production. While some nations, like the American, were overstocked with food, raw materials, and manufactured products, other nations, like the Chinese, were undernourished and poorly supplied with the comforts of living. In coming to this realization, the minds of thoughtful people in 1933 were greatly impressed by this sentence from a popular book by a popular author, where he said:

"The limiting of production was a device so pathetic that future generations were to look back on it as the last resource of men who were scarcely sane."

This realization spread to other nations, and led eventually to a series of agreements among the nations, whereby they all produced more goods than they themselves needed, and traded the surplus to other nations in exchange for *their* surplus. Many adjustments and mutual concessions among the nations of the world were necessary, trade and finance barriers were lowered or abolished, but when all this had been done, it was surprising how quickly the supposedly insuperable economic difficulties of the world faded away. No longer was overproduction a scourge, but a blessing, which gave every worker a job, higher wages and purchasing power, and raised standards of living in all countries. In fact, the word "overproduction" no longer applied, because supply and demand moved into balance, and the nightmare of surplus stocks largely disappeared.

Transportation agencies shared, of course, in this movement. Instead of transport finding itself with an excess of facilities, as in 1933, the rise in economic activity set locomotive wheels to turning, and many of the difficulties encountered by the railways during the depression automatically disappeared. The railways' slogan

of 1933, "All we need is traffic", was abundantly justified by subsequent events.

But before this happy solution of the world's troubles was fully worked out, certain transition measures were adopted by the United States in 1933 and 1934. The much-discussed creation of the post of Federal Coordinator for the railway industry brought improvement in railway performance, but it was notable that the improvement was made largely by the railways themselves. The impetus supplied by the coordinator legislation, together with the relaxation of certain restrictive legislation that had therefore held them back from well defined forward steps, led to cooperative progress along lines not previously possible. These restrictions were the result of anti-trust laws, state regulation, accounting rules, and charter and legislative provisions. All this proved what had long been contended, that the railway industry needed not so much additional control and regimentation, but freedom to work out its salvation according to the best judgment of its own leaders.

Several impractical provisions of regulatory law, such as the recapture clause of the Transportation Act of 1920, were repealed outright. Other provisions were modernized and modified, in sympathy with the newly developing idea that economic barriers should be lowered rather than raised.

At the same time, other agencies of transport were subjected to Federal regulation, so as to place all agencies on an equal competitive basis. This led to greater coordination among the several agencies than had formerly been possible. So was another forward step taken, which everyone had known for years should be taken, but which no one knew how to effectuate. Another of those things that, when once accomplished, we wonder why it had not been done years before. Paraphrasing a pungent sentence from Dickens, the nation, having effected logical reforms in transport legislation, "was in a state of perpetual astonishment at finding itself so reasonable."

With all these changes, the Interstate Commerce Commission was retained as the central unit of Federal regulation. Its functions were limited in some directions and extended in others, but the chief purpose of the new legislation was to relieve the Commission of many petty details of responsibility, and to concentrate its energies on those broader aspects of regulation which related themselves to public policy: development of the several types of transportation, rates and costs, finances, efficiency in service, and the like.

In closing, I take considerable satisfaction in calling to your attention the fact that although a statistician, I have quoted you no transportation statistics in this review of transportation past and present; and that although an economist, I have not once used those two favorite words of modern economists: "railway problem".

May I quote as my final word these recent words of Bruce Barton:

> "All the pioneers, all the explorers and leaders and builders have gone out not knowing whither they went. It isn't necessary to know the end. If the whole path ahead were clear, there would be no adventure."

Gentlemen, we are on our way to important developments and changes in transportation. We know not exactly how or whither we go, but that is less important than our readiness to adapt ourselves to the future, come what may. Let us believe that we shall emerge, and soon, from the throes of depression, and that under such conditions we shall again need our railways and other transport agencies, to carry on in future, as in the past, for the welfare of our nation.

Communications . . .

Are Smaller Systems More Efficient?

SPRINGFIELD, ILL.

TO THE EDITOR:

You publish stories of the things done by the large railroads. Maybe the little fellow has the real answer as to how to manage into the black. The attached list* of 17 roads may contain the making of a real story. 10,000 miles of line under the present conditions have operating ratios under 60 and 11 under 55. You might build a real story out of the answer to the question, "Why?".

WM. S. GATES, JR.

*The list of roads with operating ratios under 60 which Mr. Gates enclosed, reads as follows:

RAILROADS WITH OPERATING RATIO UNDER 60

	Miles	Oper. Ratio 1933, 1st 2 mos.
Bangor & Aroostook	619	51.0
Cambria & Indiana	37	59.1
Chesapeake & Ohio	3144	59.7
Chicago River & Indiana	20	49.1
Clinchfield R. R.	309	54.7
Denver & Salt Lake	232	57.6
Detroit & Toledo Shore Line	50	41.8
Detroit, Toledo & Ironton	472	59.3
Florida East Coast	839	59.4
Kansas, Oklahoma & Gulf	326	51.2
Midland Valley	363	53.6
Monongahela	177	42.6
New Orleans Terminal	20	34.3
New York Connecting	20	19.0
Norfolk & Western	2233	58.7
Utah	111	53.2
Virginian	608	48.4

To Increase Passenger Receipts

HOLLYWOOD, CALIF.

TO THE EDITOR:

Luxury, perhaps the most striking feature in the American passenger train, provides carpeted aisles, soft seats, in some cases adjustable back and foot rests, ice water, hot water and scented soap. Each passenger, willy-nilly, has to pay for these extravagant indulgences on the part of the carrier, while at home his carpets and chairs may not be as nice, and he rides downtown in the trolley car. The depression has accustomed him to simple things. He cannot afford style.

Classification of passenger accommodations if we except the Pullmans is extremely rare, almost unknown, in America. The middle class and the soiled farm hand ride in the same luxurious day coaches—although some of them prefer to ride more cheaply. And the motor-busses and transcontinental limousines beckon to them, speaking of the money to be saved.

In Europe, none but dignitaries and rich Americans ride first-class. In England, most people ride third. In Germany, laborers and not a few students ride fourth. No stigma is attached to riding less than first or second. Nor is there inconvenience in the hour of departure. For the cheaper-class car moves not only in all ordinary trains, but also in the fast ones, the "rapides."

Our "Dollar Days" and "Cent a Mile Days" and sporadic cheap excursions are not enough. People cannot wait for these bargains. What is needed is a definitely cheaper transportation good any day on any train, even the fast ones. Because the fare is less, the comforts provided would have to be of definitely less value than in the standard coaches. The cars might be much lighter. Or the older steel cars might be reconditioned to eliminate aisle strips, double windows, and enclosed wash basins. The seats could be set closer together. In France, the backrests are wood slats, the seats thinly upholstered without springs. One such car could be hauled advantageously even in our best trains.

H. KNAUER.

GOVERNOR LEHMAN, OF NEW YORK, has approved the McNamara bill as chapter 311 laws of 1933 amending the insurance law so as to permit a ticket or baggage agent of a railroad company to sell baggage or accident insurance without taking a written examination for agent's certificate of authority.

NEWS

Canadian Railway Bill Moves Slowly in House

Slight amendments are conceded by the Government—Acrimonious debate on side issues

Because of persistent criticism, though not actual opposition, from the Liberals the Bennett Ministry in Canada shows signs of exhausted patience in dealing with the railway legislation passed by the Senate and now before the House of Commons. Over a period of three weeks the bill has been before the House on several days with long interruptions and the net result so far is the passage of three or four unimportant clauses.

Late last week Hon. Robert J. Manion, Minister of Railways, moved an amendment, to take the form of part four of the measure, doubly ensuring Parliament and people against any amalgamation of the Canadian Pacific and Canadian National, and he also moved the amendment providing that there should be no abandonment of mileage on the part of either road, in the efforts for economy, achieved either jointly or separately, without the approval of the Board of Railway Commissioners.

Much of the last week's debate was occupied with more and insistent pleas from Labor's spokesmen in the House, notably Hon. Peter Heenan, former Minister of Labor, and A. A. Heaps (Winnipeg) for some provision in the legislation for compensation to those railway employees deprived of their jobs because of the economy moves. Dr. Manion told them flatly that while the Government would do all it could to protect the interests of the employees there could be no consideration of a proposal to single out one class of labor at this time for unemployment insurance at the expense of others.

Labor members also expressed distrust of the plan for pooling train services between Montreal and Toronto and Ottawa and Toronto. They feared that the Canadian National might get the worst of this deal. Dr. Manion thought the interests of the publicly-owned road were well protected and as to the future, with that road under the goverance of a board of trustees, Parliament could dismiss the chairman if he should betray his trust.

Dr. Manion and Rt. Hon. Mackenzie King, Liberal leader, came to close grips during debate of a slight amendment moved by the Minister of Railways relating to the proposed trustees. Dr. Manion did not want prominent business men who were directors of various concerns debarred from appointment as trustees of the C. N. R. He reminded the House that the C. P. R. named men directors of that road who were able to swing considerable traffic to the road. Mr. King opposed the idea of men of large commercial or financial control retaining their connections when appointed to the C. N. R. board of trustees and denounced the system of interlocking directors.

Dr Manion remarked that President E. W. Beatty of the C. P. R. was able to be a director of the Bank of Montreal without having his interests in the direction of the C. P. R. injured. It did not, he added, prevent Sir Henry Thornton from being a director of the Royal Bank of Canada.

Mr. King then threw a bomb in the camp. "Sir Henry Thornton," he said, "is not here to speak for himself. I was told by Sir Henry Thornton that word had been sent to him that he was to resign his position with the Royal bank at the instance of this government."

"I can tell the right hon. gentleman," replied Dr. Manion, "that no such word was ever sent to Sir Henry Thornton by this government or by any member of this government."

"My hon. friend," said Mr. Mackenzie King, "speaks as if he knew what the Prime Minister may have said as well as himself, but I say that Sir Henry Thornton said to me personally that word had been sent that he was to resign from the board of directors of the Royal bank because he was president of the Canadian National, and that the two positions were not compatible. He thought it was an extraordinary action on the part of the government to take. Word was sent to him from the Royal bank to resign, and he did resign. If it were thought necessary by the government of the day through the Royal Bank of Canada to tell Sir Henry Thornton as president that he was to resign from that directorate, the same argument applies to anyone who is to be appointed as trustee and chairman of the Canadian National with respect to his continuing to hold other directorships."

"The Royal Bank may have asked him to resign," Dr. Manion replied, "I know nothing about that."

"Sir Henry Thornton told me, not once but many times," said Dr. Manion, "that he was forced by the right hon. gentleman to spend the money of this country on all kinds of expenditures for this railway that he personally did not feel it was wise for the Canadian National to expend."

"I think my word is as good as my hon. friend's," Mr. Mackenzie King replied, "and I venture to say that Sir Henry Thornton never said such a thing to him in his life, never used the expression about being forced to do anything by the Government, and I say more, that all the time he was

(*Continued on page 679*)

Appropriation Cuts Will Curtail I. C. C. Activity

Reduced allowance will also bring dismissals as well as further administrative furloughs

Appropriations amounting to $5,040,000 for the work of the Interstate Commerce Commission for the fiscal year 1934, as compared with $7,148,560 appropriated for 1933, are proposed by the House appropriations committee in its report on the independent offices bill submitted to the House on May 2. This is the amount recommended by the Bureau of the Budget in place of the $7,137,639 provided in the bill which was passed by Congress at the last session but was vetoed by President Hoover. According to the committee report the reduction will be accomplished to a degree through the additional salary cuts recently effected throughout the government service "but the major portion of the reduction will require administrative furloughs, dismissals, and a general curtailment of all activities."

"The principal reductions apply to the appropriation out of which the expense of hearing rate cases are defrayed and that for the valuation of the property of the carriers. The former appropriation has been reduced from $2,692,313 (the item for salaries and expenses, which was $2,600,000 for 1933) to $2,250,000 or $442,313. The present practice of holding hearings in Washington instead of in the field will be continued on a more extensive scale to enable the commission to live within its reduced appropriation for this activity. The bill includes $1,000,000 for valuation work, as compared with $2,313,542 carried for this purpose in the bill that failed ($2,750,000 for 1933). The amount recommended is a reduction of 56.7 per cent under the appropriation carried in the bill that failed and of 63.6 per cent under the appropriation for the current fiscal year. The reduction indicated will necessitate a drastic reorganization of the work."

The report proposes $750,000 for regulating accounts, as compared with $683,560 appropriated for 1933 and $992,267 in the bill that failed. A very drastic reduction in this item was made last year as compared with the 1932 appropriation of $1,504,420. The bill also includes $445,000 for safety, $35,000 for signal safety systems, $435,000 for locomotive safety inspection, and $125,000 for printing and binding.

The bill has apparently been prepared independently of consideration of the proposed plan for transferring many of the commission's bureaus to the Department of Commerce, under which, it is reported,

(*Continued on page 678*)

Relief Plan Should Include Crossing Elimination Work

A. J. County also suggests aid to the unemployed through new R. F. C. railway loans

Use of unemployment relief funds for the elimination of grade crossings, new 20-year R. F. C. loans to railroads for improvements and an extension of the term and a reduction in interest on present R. F. C. rail loans were suggested as measures for unemployment relief by A. J. County, vice-president of the Pennsylvania, at a meeting held under the auspices of the National Industrial Conference Board in New York on April 27. Mr. County emphasized the fact that his statement was not made for the Pennsylvania; it was, he said, his personal contribution to the discussion of unemployment, "the greatest chasm that must be bridged before national confidence and credit can be restored."

Calling attention to the fact that the railroads are among the greatest employers of labor, the largest purchasers and consumers of supplies, and among the largest taxpayers, Mr. County assured the gathering that the carriers "undoubtedly can and will do their part."

In discussing his first recommendation—that unemployment relief funds be used for grade crossing elimination work—Mr. County outlined the growth of highway transport and suggested that, while the increased use of motor vehicles has undoubtedly added to comfort and convenience, it has certainly not added "to the safety of the nation." He conceded that motor vehicles are here to stay and continued to point out that "all the railroads have suggested is that the welfare and safety of the nation require that proper regulatory measures should be established to fit the motor traffic into the national transportation field."

Continuing, Mr. County expressed his belief that little more new highway mileage is needed now but that the present unemployment emergency funds could be put to good use in improving the safety of existing highways. Thus his suggestion that "the unemployment relief granted to the states should include money for the elimination of grade crossings, and reconstruction of existing bridges or grade separation structures where necessary to meet new traffic conditions." He further suggested that on important bridges and tunnels a small toll might be charged as a sinking fund to retire the cost or for future replacements and improvements.

Mr. County's second suggestion,—new 20-year R. F. C. loans to railroads—he said, would "give the railroads a chance to aid the present situation, and enable them in more prosperous times to finance these loans and pay off the government." He would fix the interest rate on such loans at about four per cent and eliminate or greatly liberalize R. F. C. collateral requirements.

As for his third suggestion—that the term of present R. F. C. railway loans be extended to 20 years—Mr. County argued that its adoption would strengthen the present railroad situation. He would also reduce to four per cent the interest on such loans and relax collateral requirements. It should be conceded now that the government cannot expect these loans to be paid entirely in three years, Mr. County continued, but he did not believe that the government would incurr any ultimate loss on its advances to railways.

New Pullman Sleeper

Peter Parke, chief engineer of the Pullman Company, will present a paper on the new aluminum Pullman sleeping car at the meeting of the New York Railroad Club on Friday evening, May 19. This car is to be exhibited at the Century of Progress Exposition at Chicago.

Western Railway Club Annual Dinner

The forty-ninth annual dinner and meeting of the Western Railway Club will be held in the grand ballroom of the Hotel Sherman, Chicago, on May 15. Harry A. Wheeler, president of the Railway Business Association, Chicago, will speak on the "Regulation of Transportation in the Light of 1933 Developments".

Missouri Pacific Salaries Reduced

Reductions in salaries of officers of the Missouri Pacific, ranging from 40 to 50 per cent, were ordered by Federal Judge C. B. Faris in the federal court at St. Louis, Mo., acting on the debtor's petition filed under the terms of the amended bankruptcy law. The order provides for a cut of 50 per cent in the president's salary and 40 to 45 per cent in the salaries of other officers.

Southern Authorized to Reduce Fares

The Interstate Commerce Commission has issued a fourth-section relief order authorizing the Southern to establish coach fares at the rate of 1½ cents a mile for an experimental period ending October 1 between Washington, D. C., and Harrisonburg, Va., between Danville and Norfolk, Va., and between Chattanooga, Tenn., and Bristol. It has also authorized the New Orleans & Northeastern to establish similar fares between New Orleans, La., and Hattiesburg, Miss. An earlier application covering a wider territory was denied by the commission.

Wage Statistics for February

Class I railways, excluding switching and terminal companies, reported to the Interstate Commerce Commission a total of 941,544 employees as of the middle of February. This was a decrease of 4,461 under the number reported by the same roads for January as the net result of an increase of 6,177 in train and engine service and a decline in the maintenance and clerical groups. The number was 12.47 per cent under that for the same month of 1932. The total compensation for the month was $106,838,999. In connection with the number given as of the middle of the month the commission's statement noted that 1,068,621 employees were reported as having received some pay during the month either for full time or part time.

Motor Carrier Regulatory Law Enacted in Oregon

Provides for comprehensive control of both common and contract carriers on the highway

Comprehensive regulations for intrastate common and contract carrier motor vehicles and some measure of control over interstate and private carriers on the highway are provided in the "Motor Transportation Act" recently enacted in Oregon. The new law, which becomes effective July 1, invests the Oregon commissioner of public utilities with powers to grant or refuse permits to highway carriers of various types and to regulate highway transportation rates and services; it also fixes fees which the various classes of carriers will henceforth be required to pay for the privilege of using the public highways of Oregon.

The act groups highway carriers into four classes as follows: Common carriers, contract carriers, private carriers, and special carriers. Except for motor vehicles specifically exempted all of the foregoing are required to obtain permits although conditions governing the granting of such permits vary. Among the motor vehicles specifically exempted from the provisions of the act are those operated wholly within an incorporated city or town or within three miles thereof; school buses; vehicles used exclusively in rural mail services; farm vehicles used exclusively by the owner to transport farm products to processing plants, shipping points or markets and farm vehicles of not more than 1½ tons capacity when used infrequently to transport for a nominal consideration the products of a neighboring farm; vehicles owned by creamery companies used exclusively in picking up and transporting dairy products from farms to the creameries (this exemption does not apply if a transport charge is absorbed in any other payment which the farmer may make to the creamery operating the trucks); vehicles used exclusively for towing, wrecking, etc.

With these preliminary definitions and stipulations out of the way the act makes the now-customary declaration of policy to the effect that regulation of highway transport is required "to the end that the highways may be rendered safer for the use of the general public . . . that the various transportation agencies of the state may be adjusted and correlated so that public highways may serve the best interests of the general public."

With respect to highway common carriers the commissioner of public utilities is given authority to fix rates, classifications and practices; prescribe accounting regulations and forms; require financial and statistical reports; pass upon the adequacy of service and facilities and fix schedules and routes so as "to prevent unnecessary duplication by common carriers of the transportation services afforded by other common carriers, or by contract carriers;" and prescribe safety regulations.

Also, it is stipulated that all rates must be just and reasonable and non-discrimi-

Continued on next left-hand page

CUT YOUR COST OF PRODUCING TON MILES!

Super-Power Locomotives are the production machines of the transportation industry. Just as the manufacturer eagerly grasps an opportunity to cut production costs with new machines, so too the progressive railroads are taking advantage of the economies of Super-Power Locomotives to reduce the cost of transportation. « The greater economy of Super-Power justifies its purchase — regardless of whether traffic is light or heavy.

LIMA LOCOMOTIVE WORKS • Incorporated • LIMA • OHIO

natory and the commissioner is specifically directed to check "the records of carriers for the purpose of discovering all discriminations and rebates." Freight carriers filing "anywhere-for-hire at any time" schedules of rates are required to name in such tariffs a rate per mile for the haul plus a rate per hour for loading and unloading. Operators of charter buses are required to publish hourly or mileage rates for each vehicle assigned to such services. Furthermore, the commissioner is empowered to reject such of these hourly or mileage schedules as will in his opinion impair the ability of other carriers to serve the public and no common carrier is to be permitted "to restrict its services to paying schedules or high class commodities with a low rate in competition with a common carrier giving complete service."

With the stipulation that "he shall not require contract carriers to be or become common carriers" the commissioner is invested with power to fix the rates of contract carriers; to prescribe for them accounting rules and forms and require financial and statistical reports; and to promulgate safety regulations in connection with their operations. Contract carriers are forbidden to cause any undue discriminations and each such carrier is required to file for approval by the commissioner copies of all contracts showing rates, fares, charges and practices.

The hours of service section permits the commissioner to prescribe the limit of hours which a driver may be permitted to work but fixes a maximum at 12 consecutive hours or 12 hours in any 24-hour period.

All non-exempt carriers, as stated at the outset, must obtain permits, but the commissioner is directed to grant permits to interstate operators as a matter of course provided they comply with insurance and indemnity bond provisions and pay mileage fees.

All applications for regular permits must be accompanied by payment of a filing fee of $5 for each vehicle proposed to be used and the same fee must be paid annually thereafter. For temporary permits a fee of $1 is to be charged. Priority in the issuance of permits is to be given carriers in operation through 1932 and up to the time of the law's passage.

Special carriers are defined under the act as those "engaged in the transportation of logs, piling, poles or rough timber, . . . from point of origin to mill, retail yard, point of consumption or railway shipping point." Permits granted to these will be issued only after consultation with state or county highway authorities; such permits will be temporary and will be revokable if highway officials find such action desirable in order to preserve the highways. Private carriers will be granted permits upon application provided their operations "will not be attended with substantial damage to the highways or dangers to the users thereof or to adjacent property or facilities, or to the public."

Fees for the use of the highway are fixed for common and contract carriers at one mill per gross ton-mile; private carriers, ¾ mill per gross ton-mile. At their own option contract carriers may pay six per cent of gross receipts in lieu of these mileage fees. Certain deposits with the commissioner are required to insure payment of fees.

Other provisions relate to indemnity and insurance bonds, penalties for violations, regulations governing free transportation and a "saving clause" stating that if any section be found unconstitutional such judgment will not affect other sections.

Rivers and Harbors Bill Introduced

Chairman Mansfield of the House committee on rivers and harbors on May 1 introduced in the House an omnibus bill to authorize expenditures totalling $98,750,000 for construction, repair and preservation of river and harbor improvements on 130 projects. He said the purpose was to prepare to fit this work in with the President's expected program of public works on which a tentative bill has been prepared.

Club Meetings

The Traffic Club of St. Louis (Mo.) held its annual meeting at the Jefferson Hotel, St. Louis, on April 25. Alex M. Field, traffic manager of the Wrought Iron Range Company, St. Louis, was elected president for the ensuing year. Vice-presidents elected were J. E. Hundley, Wabash; F. P. Zimmerman, Western Cartridge Company; R. C. Trovillion, M.-K.-T.; W. C. Bergmann, National Carloading Company, and D. A. Noonan.

The Western Railway Club will hold its next meeting at the Hotel Sherman, Chicago, on Monday, May 15, at 6:30 p.m. This will be the annual dinner. Harry A. Wheeler, president of the Railway Business Association, will speak on regulation of transportation in the light of 1933 developments.

Board Recommends Further 10 Per Cent Cut in Canada

Reduction of 20 per cent from the basic rates (10 per cent in addition to that already in effect) has been recommended in a majority report of the board of conciliation appointed to deal with the wage dispute between the Canadian National and Canadian Pacific and their enginemen, trainmen and telegraphers.

The present ten per cent decrease from the basic rates agreed upon between the parties in 1928 and 1929 has been in operation since December 1, 1931.

The majority report was signed by Justice G. F. Gibsone, of the Quebec Superior Court, chairman, and Geo. C. McDonald, Montreal, who represented the railways on the board. W. F. O'Connor, Toronto, third member of the board, nominee of the unions, dissented.

The diminution is meant to be effective only while the depression lasts. Employees of C. P. R., the subsidiaries—Dominion Atlantic, Northern Alberta and Esquimalt & Nanaimo—are included in the cut.

Loans By Railroad Credit Corporation

Loans by The Railroad Credit Corporation, either actually made or authorized to be made, up to April 30, to railroads to meet their fixed interest obligations totaled $67,308,868, according to the monthly report of the Credit Corporation filed with the Interstate Commerce Commission. In a letter addressed to chief executives of participating carriers, accompanying the report, E. G. Buckland, president of the corporation, stated that as of April 30 the corporation had received, in cash, emergency revenues and interest aggregating $69,326,142. After payment of $183,784 administrative expenses there remained available for the purposes of the plan a net of $69,142,358. This amount is represented by outstanding loans totalling $61,518,207 and a reserve fund of $4,343,536 to meet requirements for tax refunds as provided by the plan. The remainder, or $3,280,615, is the working balance, which with the revenues due in May, is available to take up the loan commitments of $4,492,000.

S. C. Limits Trucks to Ten Tons, Load Included

The South Carolina Legislature has passed, and the Governor has approved, a bill restricting the weights and dimensions of motor trucks in the interest of economy in highway construction and maintenance costs and to promote the safety of the traveling public. Full trailers are prohibited entirely, and a tractor with a semi-trailer or a single truck is limited to a maximum gross weight with load of 20,000 lb., to a width of 90 in., a length of 35 ft. and a height of 12½ ft.

Vehicles of greater dimensions may be operated for the conveyance of unusual loads only by securing a special permit for each trip. The restrictions do not apply to vehicles owned by any governmental agency nor to farm machinery, such as threshing machines. They also do not apply to telephone, telegraph or power construction materials moving by road. The restrictions will not become effective for vehicles now registered until December 31, 1934. Penalty for violation is a fine of not more than $50 or imprisonment for not more than 30 days.

R. F. C. Loans To Railroads

A total of 116 loans, aggregating $365,782,843, had been authorized by the Reconstruction Finance Corporation to 65 railroads up to April 22, according to a report of the corporation made public on April 28. Of this amount $264,740 had been cancelled or withdrawn, $29,708,530 remained at the disposal of borrowers, and $335,809,572 had been disbursed to the railroads, of which $20,278,173 had been repaid. While previous reports have indicated that no loans had been authorized this year to railroads to which loans had not been made last year, this report shows that new loans had been made since the report as of March 21 to three roads, the Galveston, Houston & Henderson, $1,061,000, the Meridian & Bigbee River, $600,000, and the Texas & Pacific, $700,000. Additional loans had also been authorized to the Chicago, Rock Island & Pacific and the Denver & Rio Grande Western. The corporation has also adopted a new policy of announcing railroad loans as they are authorized and on April 27 stated that $7,000,000 had been approved for the New York Central, $2,500,000 for the Illinois Central, $1,226,000 for the receivers of the Wabash, and $1,500,000 for the Baltimore

Continued on next left-hand page

EVERY KNOCK
is a *boost* towards the shop

Pounding brasses soon have a locomotive in such condition that money must be spent to make it fit to run again.

How to avoid spending this money is your problem.

Keep out slack and you keep out pounds. But if you try to prevent slack by setting up wedges by hand tight enough to avoid slack, they will stick as they expand at running temperatures.

To keep wedges in constant adjustment and avoid slack regardless of operating conditions, apply Franklin Automatic Adjustable Wedges. They adjust wedges automatically with every revolution of the driver and keep down maintenance.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK CHICAGO MONTREAL

& Ohio. These are in addition to amounts previously authorized and had been approved by the Interstate Commerce Commission.

Cab Signals Authorized on the Reading and the Central of N. J.

The Interstate Commerce Commission, Division 6, in an order issued on April 19, has authorized the Reading to discontinue the use of automatic train control, and to use cab signals in lieu thereof. The Union automatic stop with speed control features has been in use on this company's line between Camden, N. J. and Atlantic City, 55 miles, double track, since December 31, 1924, with 53 locomotives equipped; and the continuous induction type, one-speed coder system, with four-indication color-light cab signals, has been in use on the line between Jenkintown, Pa., and Bethlehem, 46 miles, since May, 1928, with 80 locomotives equipped. On the Atlantic City line the average number of passenger trains operated daily has been from 40 to 77, the higher figure being the record for July and August; and the total number of freight trains on this line is 7 or 8 a day. On the Bethlehem branch the average number of passenger trains per day varies in a year from 19 to 27; and in addition the company has voluntarily introduced the system, with cab signals only, on multiple-unit trains run over this division, which average from 95 to 99 daily in different months. Freight trains on this line average per day from 21 to 25 as shown by records made up each month. The number of M. U. electric motor cars equipped is 78. These cars run between Philadelphia and Lansdale, 13 miles. These cars, with cab signal equipment, have been in operation for nearly two years and have accumulated 500,000 motor car miles in A.T.C. territory without a train accident of any kind.

On the Atlantic City road the company proposes to change the cab signals, which indicate "H", "M" or "L", to three-indication color-light cab signals corresponding to the wayside signal indications. Audible cab signals will be added where not already installed.

The elimination of the train stop will probably save $27,549 yearly, and the company is convinced that no essential safeguard will be sacrificed. The Reading within the past five years, has spent about $4,000,000 on signal installations and improvements, largely in connection with the electrification of Philadelphia suburban lines.

On this showing the petition of the company is granted.

The Central of New Jersey, in a similar petition, which is granted on the same terms, asks for relief on its own lines and also in connection with the operation of its trains over the New York & Long Branch. These lines are from Red Bank, N. J., to Winslow Junction, 66 miles, and from Elizabeth Avenue to Perth Amboy, 50 miles. Fifty locomotives are equipped on the Winslow Junction line and these run through to Atlantic City over the Reading, 31 miles. On this line the average annual direct cost of maintenance and inspection for seven years has been $35,393. The line between Elizabeth Avenue and Perth Amboy was equipped under the Commission's second order. The apparatus has been in service since May, 1923, and the average annual direct cost of maintenance and inspection has been $55,157.

Seventy-five locomotives are equipped with the coder type, ten of them with receivers both at front and rear ends, and the 50 locomotives previously equipped were modified for operation over the territory operated by the coder system. On a part of the Central of New Jersey and also on a part of the New York & Long Branch, the Pennsylvania operates 63 locomotives which were equipped with A. T. C. but now, under authority granted by the commission in December, 1932, are being operated with cab signals alone.

The Central of New Jersey also equipped voluntarily its line between Matawan and Atlantic Highlands, 11 miles. This line is single track, equipped with the A. P. B. block system. Block markers are used in lieu of intermediate wayside signals.

The company presents statistics showing a great falling off in traffic within the last six years. The company proposes to make the four-indication cab signal uniform on all of the locomotives.

Railroads Underbid Buses For Transportation of Forestry Corps

The railroads appear to have succeeded in underbidding the buses for the transportation to and from the state and national forests of the members of the Civilian Conservation Corps, who are to be employed for relief purposes in reforestation and similar work under the provisions of the law recently passed by Congress. The movement is to include round trips for some 250,000 men to and from camps situated all over the country and it is estimated that it will amount to from $10,000,000 to $15,000,000 in total fares. The fact that the bus companies did not propose lower fares is said to have been somewhat of a surprise to the officials in the Quartermaster General's office because this presented an opportunity to demonstrate their possibilities in the mobilization of a large number of men at one time.

At the invitation of the Army, which is in charge of the movement, the National Association of Motor Bus Operators submitted a bid of 1.7 cents per passenger mile in regular equipment over regular routes. This was somewhat less than that of the eastern railroads, 2 cents a mile for up to 99 passengers and 1.8 cents for 100 or more at a time, but for special buses the rates quoted were 62.5 cents per mile over hard roads and 70 cents over gravel or dirt roads on the basis of 30 passengers to a bus. The western roads, through the Southwestern Passenger Association, the Transcontinental Passenger Association, and the Western Passenger Association offered a rate of 1.25 cents a mile for 99 or less and 1 cent for 100 or more, with an undertaking to arrange for transportation beyond the rail head at reasonable charges. They stated that this tender was made "in view of the close relations which have existed for many years between the carriers and the government and in view of the fact that the transportation required is in connection with the plans of the United States Government for unemployment relief, which, because of the charitable nature of the project, has the wholehearted support of the carriers and to the success of which they desire to contribute to the extent of their abilities" and that it was made on condition that it shall not be construed as a precedent for claims for a different or lower basis for either military or non-military traffic, nor for any other transportation required by the United States Government for other than that specifically covered in this tender. The carriers also emphasized that they have built up an effective organization for handling military traffic which is peculiarly adaptable for the movement of the Civilian Conservation Corps.

The plans include the transportation of the men from places of enrollment to places of reception and reconditioning and from there to the places of work.

Appropriation Cuts Will Curtail I. C. C. Activity

(*Continued from page 675*)

the valuation bureau would be abolished. The reorganization plan is still under consideration and there have been suggestions that it may be postponed.

Commissioners McManamy, Eastman, and Lewis and Secretary McGinty testified before a sub-committee of the appropriations committee on April 21. Commissioner McManamy said that the amount recommended by the Budget would make it necessary to call many more cases to Washington for hearing as it has already been necessary to do this year. Since April 1 most out-of-town hearings have been cancelled and many hearings have been postponed to the next fiscal year. He said that it costs approximately a hundred dollars a day more to hold hearings away from Washington for the stenographic record alone than when they are held in Washington, in addition to the expenses of the examiners, but that to hold hearings in Washington adds greatly to the expenses of the parties to cases. He also pointed out that in addition to the reduction in commissioners' salaries made last year from $12,000 to $10,000 the comptroller general has ruled that they are subject to the 15 per cent reduction provided for in the recent economy act. The bill provides for $10,000 salaries for the directors of the bureaus of finance, traffic, and valuation and the general counsel but it is understood they are also subject to the 15 per cent reduction.

The commission now has 2,277 employees, Commissioner McManamy said, but to keep within the appropriation it has been necessary to give many of them extensive furloughs. If the reduction is to be made permanent it would be necessary to make a straight reduction in force "but we would not perform a surgical operation unless we were forced to do it." Commissioner Lewis said that the reduction in the valuation appropriation would make necessary the discharge of approximately 600 of the 913 employees of the bureau and Commissioner Eastman said the amount proposed for the Bureau of Accounts would make it necessary to either continue to furlough

Continued on next left-hand page

cut down on the arch and you boost the fuel bill

No one questions locomotive Arch economy. The Arch has been so thoroughly proved as a fuel saver by railroad after railroad for years past.

In the urge for money saving don't let the desire to save a few dollars in Arch brick expense by skimping on the Arch blind you to the fact that every dollar thus "saved", boosts the fuel bill ten dollars.

The surest way to the lowest operating cost is not in crippling proved economy devices but in making full use of them. This means complete Arches, with every brick in place, for each locomotive that leaves the roundhouse.

HARBISON-WALKER REFRACTORIES CO.
Refractory Specialists

AMERICAN ARCH CO.
INCORPORATED
Locomotive Combustion Specialists › › ›

indefinitely or discharge the 107 men in that bureau who are now out on an indefinite furlough, or others. He said that those who had been given administrative furloughs had continued to work 97½ per cent of the time and that Director Wylie, whose basic salary is $9,000 a year, is now being paid at the rate of $5,400 by reason of furloughs and the 15 per cent reduction. He said that the $750,000 would not be sufficient to permit the policing of the accounts of the carriers once in five years, even if recapture is repealed.

Discussing the valuation appropriation Commissioner Lewis said the reduction would disrupt an organization that, with the primary valuation behind it, could within the next year bring inventories and records up to date and would cause the abandonment, at all events for the time being, of the program of bringing all records up to January 1, 1933, by the end of the fiscal year. He presented an argument against destroying the value of the valuation records which had cost the government $45,000,000 by making them unavailable, but said that the $1,000,000 proposed would keep the records available as a practical working guide, together with the certain amount of policing and checking of the railroads' reports, and retain a staff to analyze, interpret and present the records of carriers' property gathered over the period of the last 20 years. This is about the extent of the activity contemplated by the Rayburn bill now pending in Congress for the repeal of Section 15a and an amendment of Section 19a of the interstate commerce act. Since February, Commissioner Lewis said, the Bureau of Valuation has been at work on "an anticipatory program preparing to meet the demands for guidance in the case of carriers in receiverships and those which seem to be marked as applicants for reorganization under the amended bankruptcy law." This work began with a list of 16 carriers in receivership and 16 that "were seemingly headed for voluntary or involuntary reorganization of their financial structures under the new provisions of the bankruptcy act." Some others have since been added.

Canadian Railway Bill Moves Slowly in House

(Continued from page 675)

president of the Canadian National Railways I never asked Sir Henry Thornton to do anything that involved public expenditure. I make that statement on my honor as a member of this House."

The following day Dr. Manion read to the House a telegram from Maurice W. Wilson, general manager of the Royal Bank in Montreal, stating that the management of that bank had never consulted the Government about Sir Henry's directorship of that bank. Dr. Manion also stated that Sir Henry had remained a director of the bank six months after he resigned as President of the Canadian National, and he again flatly denied that the present Government ever had anything to do with the resignation of Sir Henry as a director of the Royal Bank.

On the second day the bill was before the House last week many efforts were made by Liberals to amend the measure but only one of their amendments was accepted, although the principle of another was incorporated in a change moved by the Government. Hon. John C. Elliott, a former Liberal Minister, moved an amendment to oblige all three of the trustees to give full time to their Canadian National jobs, but the Minister reminded him that an amendment moved the previous day by a member of the Government, Hon. H. H. Stevens, would give the Cabinet power to oblige the trustees to give full time when it was deemed desirable. Then Charles G. Power, a Quebec City Liberal, moved that the number of trustees be increased from three to five, but his move was ruled out of order. Again Mr. Power tried an amendment, this time to abolish the proposed panel system of selecting the trustees and handing the selection over to the Cabinet. He said he did this to get away from the present plan which would enable the trustees to be a self-perpetuating board. This amendment was also rejected by the Government. Finally, an amendment moved by Hon. Ian Mackenzie, a former Liberal Minister, to reduce the tenure of office of trustees from seven to five years was accepted by the Government.

Meetings & Conventions

The following list gives names of secretaries, date of next or regular meetings and places of meetings.

AIR BRAKE ASSOCIATION.—T. L. Burton, Room 5605, Grand Central Terminal Building, New York City.

ALLIED RAILWAY SUPPLY ASSOCIATION.—F. W. Venton, Crane Company, 836 S. Michigan Ave., Chicago. To meet with Air Brake Association, Car Department Officers' Association, International Railroad Master Blacksmiths' Association, International Railway Fuel Association, International Railway General Foremen's Association, Master Boiler Makers' Association and the Traveling Engineers' Association.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—W. R. Curtis, F. T. R., M. & O. R. R., Chicago, Ill.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 S. Michigan Ave., Chicago.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J. 143 Liberty St., New York.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—F. O. Whiteman, 1506 Missouri Pacific Building, St. Louis, Mo. Annual meeting, June 13-15, 1933, Cleveland, Ohio.

AMERICAN ASSOCIATION OF RAILWAY ADVERTISING AGENTS.—E. A. Abbott, Poole Bros., Inc., 85 W. Harrison St., Chicago. Next meeting, January 20, 1934.

AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—F. R. Borger, C. I. & L. Ry., 836 Federal St., Chicago.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—(See American Transit Association.).

AMERICAN RAILWAY ASSOCIATION.—H. J. Forster, 30 Vesey St., New York, N. Y.

- Division I.—Operating.—J. C. Caviston, 30 Vesey St., New York.
  - Freight Station Section.—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago.
  - Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York. Next meeting, June 26-27, 1933, Hotel La Salle, Chicago, Ill.
  - Protective Section.—J. C. Caviston, 30 Vesey St., New York. Next meeting, July 12-13, 1933, Hotel Stevens, Chicago, Ill.
  - Safety Section.—J. C. Caviston, 30 Vesey St., New York. Next meeting, October 3-5, 1933, Hotel Stevens, Chicago, Ill.
  - Telegraph and Telephone Section.—W. A. Fairbanks, 30 Vesey St., New York. Annual meeting, June 13-15, 1933, Hotel Stevens, Chicago, Ill.
- Division II.—Transportation.—G. W. Covert, 59 East Van Buren St., Chicago.
- Division III.—Traffic.—J. Gottschalk, 143 Liberty St., New York.
- Division IV.—Engineering.—E. H. Fritch, 59 East Van Buren St., Chicago. Exhibit by National Railway Appliances Association.
  - Construction and Maintenance Section.—E. H. Fritch, 59 East Van Buren St., Chicago.
  - Electrical Section.—E. H. Fritch, 59 East Van Buren St., Chicago.
  - Signal Section.—R. H. C. Balliet, 30 Vesey St., New York. Next meeting, May 9-10, 1933, Hotel Roosevelt, New York, N. Y.
- Division V.—Mechanical.—V. R. Hawthorne, 59 East Van Buren St., Chicago.
  - Equipment Painting Section. — V. R. Hawthorne, 59 East Van Buren St., Chicago.
- Division VI.—Purchases and Stores.—W. J. Farrell, 30 Vesey St., New York. Annual meeting, June 26, 1933, Hotel Stevens, Chicago.
- Division VII.—Freight Claims.—Lewis Pilcher, 59 East Van Buren St., Chicago. Annual meeting, June 6-8, 1933, Brown Hotel, Louisville, Ky.
- Division VIII.—Motor Transport.—George M. Campbell, 30 Vesey St., New York.
- Car Service Division.—C. A. Buch, 17th and H Sts., N. W., Washington, D. C.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry. 319 N. Waller Ave., Chicago.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—J. A. Senter, Ind. Agt., N. C. & St. L. Ry., Nashville, Tenn. Annual meeting, June 14-16, 1933, Baltimore Hotel, Kansas City, Mo.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—Works in co-operation with the American Railway Association. Division IV.—E. H. Fritch, 59 East Van Buren St., Chicago, Ill. Exhibit by National Railway Appliances Association.

AMERICAN RAILWAY MAGAZINE EDITORS' ASSOCIATION.—Miss E. Kramer, M-K-T Employees Magazine, St. Louis, Mo.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—G. G. Macina, C., M., St. P. & P. R. R., 11402 Calumet Ave., Chicago. Exhibit by Tool Foremen Suppliers' Association.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—R. E. Schindler, Union Trust Bldg., Washington, D. C.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division. Marion B. Richardson, Ahrens & Richardson, 30 Church St., New York.

AMERICAN TRANSIT ASSOCIATION.—Guy C. Hecker, 292 Madison Ave., New York. Annual meeting, September 18-20, 1933, Hotel Stevens, Chicago, Ill.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—H. L. Dawson, 1104 Chandler Building, Washington, D. C. Annual meeting, 1934, Houston, Tex.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul Minn. Annual meeting, June 21-23, 1933, Hotel Sherman, Chicago, Ill.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Station, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

ASSOCIATION OF RAILWAY EXECUTIVES.—Stanley J. Strong, Transportation Building, Washington, D. C.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—S. A. Baber, High Grade Manufacturing Co., 10418 St. Clair Ave., Cleveland, Ohio. Meets with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—C. R. Crook, 2276 Wilson Ave., N. D. G., Montreal, Que. Regular meetings, second Monday of each month, except June, July, and August, Windsor Hotel, Montreal, Que.

CAR DEPARTMENT OFFICERS' ASSOCIATION.—A. S. Sternberg, M. C. B. Belt Ry. of Chicago, 7926 South Morgan Street, Chicago.

CAR FOREMAN'S ASSOCIATION OF CHICAGO.—G. K. Oliver, 2514 W. 55th St., Chicago. Regular meetings, second Monday of each month, except June, July and August, Auditorium Hotel, Chicago.

CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.—J. W. Krause, Room 299, 610 So. Main St., Los Angeles, Cal. Club not active at present time.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—J. F. Brady, Main and Barton Sts., St. Louis, Mo. Operation suspended indefinitely.

CENTRAL RAILWAY CLUB OF BUFFALO.—M. D. Reed, 1817 Hotel Statler, McKinley Square, Buffalo, N. Y. Regular meetings, second Thursday of each month, except June, July and August, Hotel Statler, Buffalo, N. Y.

CINCINNATI RAILWAY CLUB.—D. R. Boyd, 2920 Utopia Place, Hyde Park, Cincinnati, Ohio. Operation suspended indefinitely.

CLEVELAND RAILWAY CLUB.—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Regular meetings second Monday of each month, except June, July and August, Hotel Cleveland, Cleveland, Ohio.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—T. D. Smith, 1660 Old Colony Building, Chicago.

Continued on next left-hand page

IT is extravagance—not economy—to put an old or patched-up superheater back in a boiler with a new firebox.

Superheater units and fireboxes used to last for ten years—but they won't do it now. High-speed operation of heavy trains delights the trainmaster, but it punishes the locomotive, and the superheater and the firebox take the beating.

Both are exposed to terrific heat and both must be renewed much oftener than was necessary a few years back.

Fortunately in the case of the superheater, renewal of units can be effected at a cost much less than that of new units through the medium of the Elesco unit remanufacturing service.

It is extravagance—not economy—to put an old or patched-up superheater back in a boiler with a new firebox.

ELESCO

A-780

NEW YORK **THE SUPERHEATER COMPANY** CHICAGO

Financial

ARIZONA EASTERN.—*Abandonment.*—Division 4 of the Interstate Commerce Commission has authorized the abandonment of branch lines from Douglas, Ariz., to Cochise, 59.1 miles, from Kelton to Gleason, 6.4 miles, from Kelton to Courtland, 4.6 miles, and from Pearce to Commonwealth Mill, 1.2 miles, an aggregate of 71.3 miles, all in Cochise county, Ariz.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*R. F. C. Loan.*—This company has applied to the Reconstruction Finance Corporation for an additional loan of $9,000,000 for interest and payments on equipment trust certificates.

DELAWARE, LACKAWANNA & WESTERN.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to pledge bonds of subsidiary companies to the amount of $2,343,000 as collateral for a loan from the Reconstruction Finance Corporation.

DENVER & RIO GRANDE WESTERN.—*Abandonment.*—Division 4 of the Interstate Commerce Commission has authorized this company to abandon a narrow-gage branch line from Lake Junction, Colo., to Lake City, 35.81 miles.

ERIE.—*R. F. C. Loan.*—Division 4 of the Interstate Commerce Commission has approved an additional loan of $1,500,000 from the Reconstruction Finance Corporation for the purpose of paying in part interest due May 1.

ILLINOIS TERMINAL.—*Excess Income.*—The Interstate Commerce Commission has extended to September 1 the time allowed this company to pay to the commission the amount which it has found to be due under the recapture clause, on condition that the company agrees to protect the commission for any loss of interest upon the amount of its liability ultimately found to be due. The company is contesting the commission's order in court.

LOUISVILLE & NASHVILLE.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Graces, Ala., to Hedona, 5 miles.

PRESCOTT & NORTHWESTERN.—*Time For Recapture Payment Extended.*—The Interstate Commerce Commission has extended to July 3 the time for the payment by this company of the amount found due under the recapture clause under an order of February 1, 1932.

ST. LOUIS-SAN FRANCISCO.—*Abandonment.*—The receivers have applied to the Interstate Commerce Commission for authority to abandon the Winkler branch, from Bangert, Mo., to De Camp, 12.8 miles, and the Sligo Branch, from Goltra, Mo., to Sligo, 5.4 miles.

STANLEY, MERRILL & PHILLIPS.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Gilman, Wis., to Walrath, 20 miles.

TEXAS & GULF.—*Abandonment.*—Examiner J. S. Prichard of the Interstate Commerce Commission has recommended in a proposed report that the commission authorize this company to abandon its Gary-Grigsby branch from Gary, Tex., to Grigsby, 27.16 miles.

VIRGINIAN.—*Annual Report.*—The 1932 annual report of this company shows net income after interest and other charges of $2,074,399, as compared with net income of $3,256,505 in 1931. Selected items from the Income Statement follow:

	1932	1931	Increase or Decrease
Average Mileage Operated	608.14	593.26	+14.88
RAILWAY OPERATING REVENUES	$12,818,969	$15,337,426	−$2,518,457
TOTAL OPERATING EXPENSES	6,769,015	8,066,172	−1,297,157
Operating ratio	52.80	52.59	+.21
NET REVENUE FROM OPERATIONS	6,049,954	7,271,254	−1,221,300
Railway tax accruals	1,655,000	1,860,000	−205,000
Railway Operating income	4,394,820	5,411,182	−1,016,362
Equipment rents—net	760,789	864,656	−103,866
Joint facility rents—net	40,482	69,773	−29,291
NET RAILWAY OPERATING INCOME	5,196,092	6,345,611	−1,149,519
Non-operating Income	1,060,826	1,061,726	−900
GROSS INCOME	6,256,918	7,407,337	−1,150,419
Rent for leased roads	827,706	766,370	+61,335
Interest on funded debt	3,224,171	3,260,493	−36,322
TOTAL FIXED CHARGES	4,148,762	4,119,190	+29,572
NET INCOME	$2,074,399	$3,256,505	−$1,182,106

WABASH.—*R. F. C. Loans.*—Division 4 of the Interstate Commerce Commission has approved a further loan of $3,000,000 to the receivers from the Reconstruction Finance Corporation for the purpose of paying interest on underlying mortgage bonds and principal and interest on equipment obligations.

WACO, BEAUMONT, TRINITY & SABINE.—*R. F. C. Loan.*—The receiver has applied to the Reconstruction Finance Corporation for a loan of $200,000.

Senator Sheppard on May 2 presented in the Senate a resolution adopted by the Texas legislature requesting the R. F. C. to grant and the Interstate Commerce Commission to approve a loan of $5,150,000 to enable it to complete its project. Last year an application was filed for a loan of $8,983,000 but after the commission had failed to approve this repeated revised applications have been filed for smaller amounts.

WESTERN PACIFIC.—*Annual Report.*—The 1932 annual report of this company shows net deficit after interest and other charges of $2,230,177 as compared with net deficit of $2,127,162 in 1931. Selected items from the Income Statement follow:

	1932	1931	Increase or Decrease
RAILWAY OPERATING REVENUES	$10,768,713	$12,914,527	−$2,145,814
Maintenance of way	1,331,849	2,118,536	−786,686
Maintenance of equipment	1,866,730	2,226,652	−359,922
Transportation	4,331,602	5,464,626	−1,133,024
TOTAL OPERATING EXPENSES	9,031,922	11,439,804	−2,407,882
Operating ratio	83.87	88.58	−4.71
NET REVENUE FROM OPERATIONS	1,736,791	1,474,723	+262,008
Railway tax accruals	998,027	1,106,614	−108,588
Railway operating income	736,687	367,564	+369,123
Equipment rents	398,588	322,982	+75,606
Joint facility rents	180,017	218,688	−38,671
Non-operating income	1,890,832	2,119,191	−228,559
GROSS INCOME	2,627,520	2,486,755	+140,764
Rent for leased roads	3,600	3,600	.....
Interest on funded debt	3,128,574	2,764,607	+363,967
TOTAL DEDUCTIONS FROM GROSS INCOME	4,857,697	4,613,917	+243,779

WISCONSIN CENTRAL.—*Abandonment.*—Examiner R. R. Molster of the Interstate Commerce Commission has recommended in a proposed report that the commission authorize this company to abandon part of a line from Athens, Wis., to Goodrich, 10.55 miles.

Average Prices of Stocks and of Bonds

	May 2	Last week	Last year
Average price of 20 representative railway stocks..	33.00	28.32	17.76
Average price of 20 representative railway bonds..	59.31	56.41	57.50

Dividends Declared

Nashville & Decatur.—7½ Per Cent Guaranteed, 93¾c, payable July 1 to holders of record June 20.

Norfolk & Western.—Common, $2.00, quarterly, payable June 19 to holders of record May 31.

Reading Company.—Preferred, 50c, quarterly, payable June 8 to holders of record May 18.

Tentative Valuation Reports

The Interstate Commerce Commission has issued tentative valuation reports finding the final value for rate-making purposes of the property owned and used for common-carrier purposes as of the respective valuation dates as follows:

Jacksonville Terminal.....	$6,875,000	1928
Fort Wayne Union.....	105,000	1927
Wichita Falls & Southern.....	1,950,000	1927
(used)	5,150,000	
Newaukum Valley.....	410,000	1927
Middle Creek.....	16,000	1927
Missouri-Illinois	5,600,000	1927
Collins & Glenville.....	180,000	1928
Cowlitz, Chehalis & Cascade...	860,000	1927

Construction

WEST SHORE.—The New York Public Service Commission has ordered the reconstruction of the highway bridge which carries the Old Post Road over the West Shore division of the New York Central in Esopus, N. Y. The structure will be of two plate girders and seven concrete spans. The width of the embankment will be 40 ft., and will be surfaced to a width of 30 ft., with one five-foot sidewalk. The new structure which will be five feet from the existing structure will be 275 ft. long. The railroad estimated the cost of the project at $144,100 and the Department of Public Works estimated the cost at $114,600 not including land and property damages. The railroad company is to prepare the plans and do all the work.

Continued on next left-hand page

IT is extravagance—not economy—to put an old or patched-up superheater back in a boiler with a new firebox.

Superheater units and fireboxes used to last for ten years—but they won't do it now. High-speed operation of heavy trains delights the trainmaster, but it punishes the locomotive, and the superheater and the firebox take the beating.

Both are exposed to terrific heat and both must be renewed much oftener than was necessary a few years back.

Fortunately in the case of the superheater, renewal of units can be effected at a cost much less than that of new units through the medium of the Elesco unit remanufacturing service.

It is extravagance—not economy—to put an old or patched-up superheater back in a boiler with a new firebox.

ELESCO

A-780

NEW YORK **THE SUPERHEATER COMPANY** CHICAGO

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabasha St., Winona, Minn.

MASTER BOILER MAKERS' ASSOCIATION.—A. F. Stiglmeier, 29 Parkwood St., Albany, N. Y.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—James B. Walker, 270 Madison Ave., New York. Annual meeting, October 10-13, 1933, Cincinnati, Ohio.

NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.—(See Railway Tie Association.).

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, Suite 322, 910 South Michigan Ave., Chicago. Exhibit at A. R. E. A. convention.

NATIONAL SAFETY COUNCIL.—Steam Railroad Section (See Safety Section, American Railway Association).

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, second Tuesday of each month, except June, July, August and September, Hotel Statler, Boston, Mass.

NEW YORK RAILROAD CLUB.—D. W. Pye, 30 Church St., New York. Regular meetings third Friday of each month, except June, July and August, 29 W. 39th St., New York City.

PACIFIC RAILWAY CLUB.—W. S. Wollner, P. O. Box 3275, San Francisco, Cal. Regular meetings second Thursday of each month, alternately in San Francisco and Oakland.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, Transportation Building, Washington, D. C.

RAILWAY BUSINESS ASSOCIATION.—P. H. Middleton, (Treas. and Asst. Sec.), First National Bank Building, Chicago, Ill.

RAILWAY CLUB OF PITTSBURGH.— J. D. Conway, 1841 Oliver Building, Pittsburgh, Pa. Regular meetings, fourth Thursday of each month except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS ASSOCIATION.—Edward Wray, 9 S. Clinton St., Chicago. Meets with Association of Railway Electrical Engineers.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md. Annual meeting, October 17-19, 1933.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meets with Mechanical Division Purchases and Stores Division and Motor Transport Division, American Railway Association.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A. Division I.

RAILWAY TIE ASSOCIATION.—Roy M. Edmonds, 1252 Syndicate Trust Bldg., St. Louis, Mo. Annual meeting, May 10-11, 1933, Jefferson Hotel, Richmond, Va.

RAILWAY TREASURY OFFICERS ASSOCIATION.—L. W. Cox, 1428 Broad Street Station Building, Philadelphia, Pa.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—T. F. Donahoe, Gen. Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Annual meeting, September 19-21, 1933, Hotel Stevens, Chicago, Ill.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Drawer 24, M. P. O., St. Louis, Mo. Meetings temporarily suspended.

SIGNAL APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York. Meets with A. R. A. Signal Section.

SOCIETY OF OFFICERS, EASTERN ASSOCIATIONS OF RAILROAD VETERANS.—M. W. Jones, Baltimore & Ohio, Mt. Royal Station, Baltimore, Md. Annual meeting, October 7-8, 1933, Scranton, Pa.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, 4 Hunter St., S. E., Atlanta, Ga. Regular meetings, third Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta, Ga.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—R. G. Parks, A. B. & C. R. R., Atlanta, Ga.

SUPPLY MEN'S ASSOCIATION.—E. H. Hancock, Treasurer, Louisville Varnish Co., Louisville, Ky. Meets with A. R. A. Division V. Equipment Painting Section.

TOOL FOREMEN SUPPLIERS' ASSOCIATION.— E. E. Caswell, Union Twist Drill Co., 11 S. Clinton St., Chicago, Ill. Meets with American Railway Tool Foremen's Association.

TORONTO RAILWAY CLUB.—N. A. Walford, P. O. Box 8, Terminal "A," Toronto. Regular meetings first Friday of each month, except June, July and August, Royal York Hotel, Toronto, Ont.

TRACK SUPPLY ASSOCIATION.—L. C. Ryan, Oxweld Railroad Service Co., Carbon & Carbide Building, Chicago. Meets with Roadmasters and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, 1177 East 98th St., Cleveland, O.

WESTERN RAILWAY CLUB.—J. H. Nash, Dri-Steam Valve Co., 1101 Peoples Gas Building, Chicago. Regular meetings third Monday of each month, except June, July, August and September, Hotel Sherman, Chicago, Ill.

Equipment and Supplies

FREIGHT CARS

THE PROCTER & GAMBLE COMPANY is inquiring for five aluminum tanks of 8,000 gal. capacity, for tank cars.

THE BRITISH AMERICAN OIL COMPANY, Toronto, Ontario, has ordered 50 tank cars of 40 tons' capacity from the National Steel Car Company.

IRON AND STEEL

THE ATCHISON, TOPEKA & SANTA FE has ordered 100 tons of structural steel for a bridge at Arcadia, Cal., from the American Bridge Company.

THE LOUISVILLE & NASHVILLE has ordered 925 tons of structural steel for miscellaneous bridge work, placing 505 tons with the Mt. Vernon Bridge Company and 420 tons with the Ingalls Iron Works Company.

THE DELAWARE, LACKAWANNA & WESTERN has ordered 2,000 tons of 130-lb. rail from the Bethlehem Steel Company. An order for about 100 tons of structural steel for repairs to the boiler shop at Jersey City, N. J. has been let to the American Bridge Company.

MISCELLANEOUS

THE BOSTON & MAINE has ordered 10,000 Evertite rail joints for 100-lb. rail from Standard Equipments, Inc., New York.

THE ST. LOUIS-SAN FRANCISCO has ordered 5,000 Evertite rail joints for 75 and 80-lb. rail from Standard Equipments, Inc., New York.

Supply Trade

The Republic Steel Corporation has moved its Dallas, Tex., district sales office to 2322 Gulf building, Houston, Tex.

Standard Equipment, Inc., manufacturer of the Evertite rail joint has moved its main office from 415 Lexington avenue to 70 East Forty-fifth street, New York.

The Chicago sales office of the universal pipe division of the **Central Foundry Company,** New York, is now located at 1629 Wellington street, Chicago.

The Earle Gear & Machine Company, Philadelphia, Pa., has moved its New York City sales office from 95 Liberty street to 149 Broadway, New York.

Cyrus J. Holland, Peoples Gas building, Chicago, has been appointed western representative of the **Standard Locomotive Equipment Company,** Toledo, Ohio.

The Electric Storage Battery Company has consolidated its sales, operating, credit and depot departments in its Chicago assembly plant, 4613 South Western avenue.

The **Worthington Pump & Machinery Corporation** has moved its general and executive offices from 2 Park avenue, New York, to its new office building adjacent to the corporation's plant at Harrison, N. J., which was opened on May 1. The local sales office will be continued at 2 Park avenue, New York.

H. V. Erben has been appointed manager of the switchgear sales division of the Central station department of the **General Electric Company,** with headquarters at West Philadelphia, (Pa.,) works, to succeed **J. W. Upp,** who retired on May 1 after 32 years of service with the company, including 26 years as manager of that department. Mr. Upp will continue in an advisory and consulting capacity to the switchgear division and as a consultant for other departments of the company.

The United States Steel Corporation announces the following additions to the staff of the commercial office headed by **C. L. Wood,** commercial vice-president: **F. D. Foote,** assistant to vice-president, in which position he will be responsible for the co-ordination of sales efforts affecting the railroads and the railroad equipment industries; **E. P. Brooks,** assistant to vice-president, formerly of the sales executive staff of Sears-Roebuck & Company; all with headquarters at New York. Mr. Foote was born on December 16, 1892, and became associated with the Greenville Steel Car Company as purchasing agent in 1912. Four years later he became a director and secretary and treasurer of the company, and in 1924 was elected president. When the Greenville Steel Car Company became a subsidiary of the Pittsburgh Forgings Company in January, 1930, Mr. Foote became vice-president of the latter company retaining the presidency of the Greenville Steel Car Company. In March, 1932, he became president of the Pittsburgh Forgings Company, which position he held until he became associated recently, with the United States Steel Corporation, as an assistant to C. L. Wood, commercial vice-president. Mr. Foote has served for several years as a director of the American Railway Car Institute.

OBITUARY

Milton Markley, representative of the Rail Joint Company, New York, for the New York-Philadelphia territory, with headquarters at Harrisburg, Pa., died in a hospital at Harrisburg, on May 1.

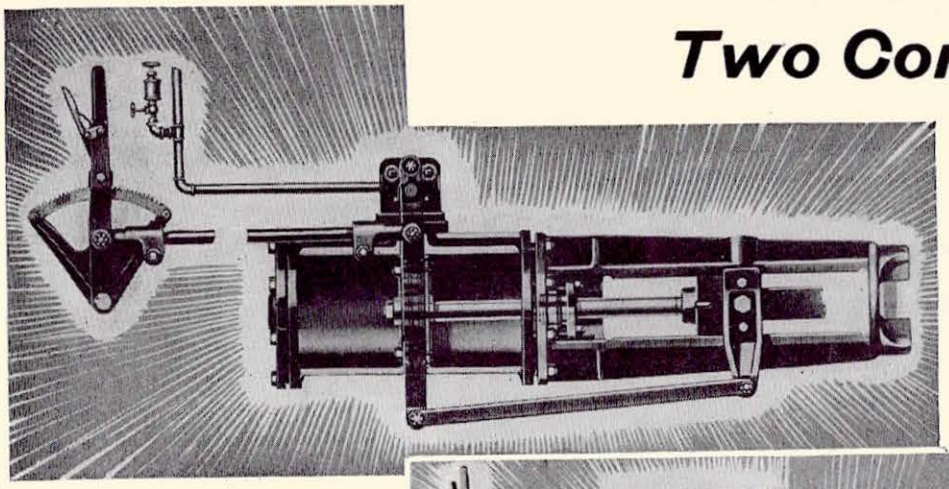
TRADE PUBLICATION

THE NEW STORY OF ANCIENT WROUGHT IRON.—In a booklet of 16 pages, the A. M. Byers Company, Pittsburgh, Pa., presents a simple, yet accurate, description of genuine wrought iron and a comparison of the age-old method of its manufacture with the process for quantity production developed by that company. In addition to eight half-page views illustrating the old and new methods, there is a frontispiece in the form of a reproduction of a photomicrograph of wrought iron.

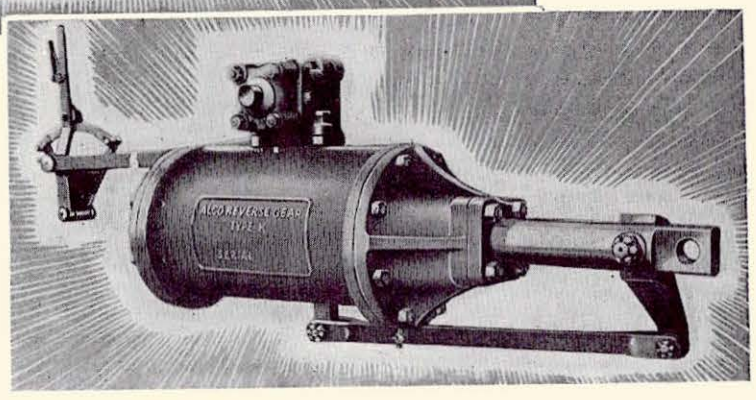
Continued on next left-hand page

Alco REVERSE GEARS...

Your Choice of Two Constructions



Type "G" Gear with crosshead and guides.



Type "K" Gear with trunk-piston rod.

SIMPLE
ACCURATE
EASILY MAINTAINED
REASONABLY PRICED

American Locomotive Company
30 Church Street New York N.Y.

Financial

ARIZONA EASTERN.—*Abandonment.*—Division 4 of the Interstate Commerce Commission has authorized the abandonment of branch lines from Douglas, Ariz., to Cochise, 59.1 miles, from Kelton to Gleason, 6.4 miles, from Kelton to Courtland, 4.6 miles, and from Pearce to Commonwealth Mill, 1.2 miles, an aggregate of 71.3 miles, all in Cochise county, Ariz.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*R. F. C. Loan.*—This company has applied to the Reconstruction Finance Corporation for an additional loan of $9,000,000 for interest and payments on equipment trust certificates.

DELAWARE, LACKAWANNA & WESTERN.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to pledge bonds of subsidiary companies to the amount of $2,343,000 as collateral for a loan from the Reconstruction Finance Corporation.

DENVER & RIO GRANDE WESTERN.—*Abandonment.*—Division 4 of the Interstate Commerce Commission has authorized this company to abandon a narrow-gage branch line from Lake Junction, Colo., to Lake City, 35.81 miles.

ERIE.—*R. F. C. Loan.*—Division 4 of the Interstate Commerce Commission has approved an additional loan of $1,500,000 from the Reconstruction Finance Corporation for the purpose of paying in part interest due May 1.

ILLINOIS TERMINAL.—*Excess Income.*—The Interstate Commerce Commission has extended to September 1 the time allowed this company to pay to the commission the amount which it has found to be due under the recapture clause, on condition that the company agrees to protect the commission for any loss of interest upon the amount of its liability ultimately found to be due. The company is contesting the commission's order in court.

LOUISVILLE & NASHVILLE.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Graces, Ala., to Hedona, 5 miles.

PRESCOTT & NORTHWESTERN.—*Time For Recapture Payment Extended.*—The Interstate Commerce Commission has extended to July 3 the time for the payment by this company of the amount found due under the recapture clause under an order of February 1, 1932.

ST. LOUIS-SAN FRANCISCO.—*Abandonment.*—The receivers have applied to the Interstate Commerce Commission for authority to abandon the Winkler branch, from Bangert, Mo., to De Camp, 12.8 miles, and the Sligo Branch, from Goltra, Mo., to Sligo, 5.4 miles.

STANLEY, MERRILL & PHILLIPS.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Gilman, Wis., to Walrath, 20 miles.

TEXAS & GULF.—*Abandonment.*—Examiner J. S. Prichard of the Interstate Commerce Commission has recommended in a proposed report that the commission authorize this company to abandon its Gary-Grigsby branch from Gary, Tex., to Grigsby, 27.16 miles.

VIRGINIAN.—*Annual Report.*—The 1932 annual report of this company shows net income after interest and other charges of $2,074,399, as compared with net income of $3,256,505 in 1931. Selected items from the Income Statement follow:

	1932	1931	Increase or Decrease
Average Mileage Operated	608.14	593.26	+14.88
RAILWAY OPERATING REVENUES	$12,818,969	$15,337,426	−$2,518,457
TOTAL OPERATING EXPENSES	6,769,015	8,066,172	−1,297,157
Operating ratio	52.80	52.59	+.21
NET REVENUE FROM OPERATIONS	6,049,954	7,271,254	−1,221,300
Railway tax accruals	1,655,000	1,860,000	−205,000
Railway Operating income	4,394,820	5,411,182	−1,016,362
Equipment rents—net	760,789	864,656	−103,866
Joint facility rents—net	40,482	69,773	−29,291
NET RAILWAY OPERATING INCOME	5,196,092	6,345,611	−1,149,519
Non-operating Income	1,060,826	1,061,726	−900
GROSS INCOME	6,256,918	7,407,337	−1,150,419
Rent for leased roads	827,706	766,370	+61,335
Interest on funded debt	3,224,171	3,260,493	−36,322
TOTAL FIXED CHARGES	4,148,762	4,119,190	+29,572
NET INCOME	$2,074,399	$3,256,505	−$1,182,106

WABASH.—*R. F. C. Loans.*—Division 4 of the Interstate Commerce Commission has approved a further loan of $3,000,000 to the receivers from the Reconstruction Finance Corporation for the purpose of paying interest on underlying mortgage bonds and principal and interest on equipment obligations.

WACO, BEAUMONT, TRINITY & SABINE.—*R. F. C. Loan.*—The receiver has applied to the Reconstruction Finance Corporation for a loan of $200,000.

Senator Sheppard on May 2 presented in the Senate a resolution adopted by the Texas legislature requesting the R. F. C. to grant and the Interstate Commerce Commission to approve a loan of $5,150,000 to enable it to complete its project. Last year an application was filed for a loan of $8,983,000 but after the commission had failed to approve this repeated revised applications have been filed for smaller amounts.

WESTERN PACIFIC.—*Annual Report.*—The 1932 annual report of this company shows net deficit after interest and other charges of $2,230,177 as compared with net deficit of $2,127,162 in 1931. Selected items from the Income Statement follow:

	1932	1931	Increase or Decrease
RAILWAY OPERATING REVENUES	$10,768,713	$12,914,527	−$2,145,814
Maintenance of way	1,331,849	2,118,536	−786,686
Maintenance of equipment	1,866,730	2,226,652	−359,922
Transportation	4,331,602	5,464,626	−1,133,024
TOTAL OPERATING EXPENSES	9,031,922	11,439,804	−2,407,882
Operating ratio	83.87	88.58	−4.71
NET REVENUE FROM OPERATIONS	1,736,791	1,474,723	+262,008
Railway tax accruals	998,027	1,106,614	−108,588
Railway operating income	736,687	367,564	+369,123
Equipment rents	398,588	322,982	+75,606
Joint facility rents	180,017	218,688	−38,671
Non-operating income	1,890,832	2,119,191	−228,559
GROSS INCOME	2,627,520	2,486,755	+140,764
Rent for leased roads	3,600	3,600	.....
Interest on funded debt	3,128,574	2,764,607	+363,967
TOTAL DEDUCTIONS FROM GROSS INCOME	4,857,697	4,613,917	+243,779

WISCONSIN CENTRAL.—*Abandonment.*—Examiner R. R. Molster of the Interstate Commerce Commission has recommended in a proposed report that the commission authorize this company to abandon part of a line from Athens, Wis., to Goodrich, 10.55 miles.

Average Prices of Stocks and of Bonds

	May 2	Last week	Last year
Average price of 20 representative railway stocks..	33.00	28.32	17.76
Average price of 20 representative railway bonds..	59.31	56.41	57.50

Dividends Declared

Nashville & Decatur.—7½ Per Cent Guaranteed, 93¾c, payable July 1 to holders of record June 20.

Norfolk & Western.—Common, $2.00, quarterly, payable June 19 to holders of record May 31.

Reading Company.—Preferred, 50c, quarterly, payable June 8 to holders of record May 18.

Tentative Valuation Reports

The Interstate Commerce Commission has issued tentative valuation reports finding the final value for rate-making purposes of the property owned and used for common-carrier purposes as of the respective valuation dates as follows:

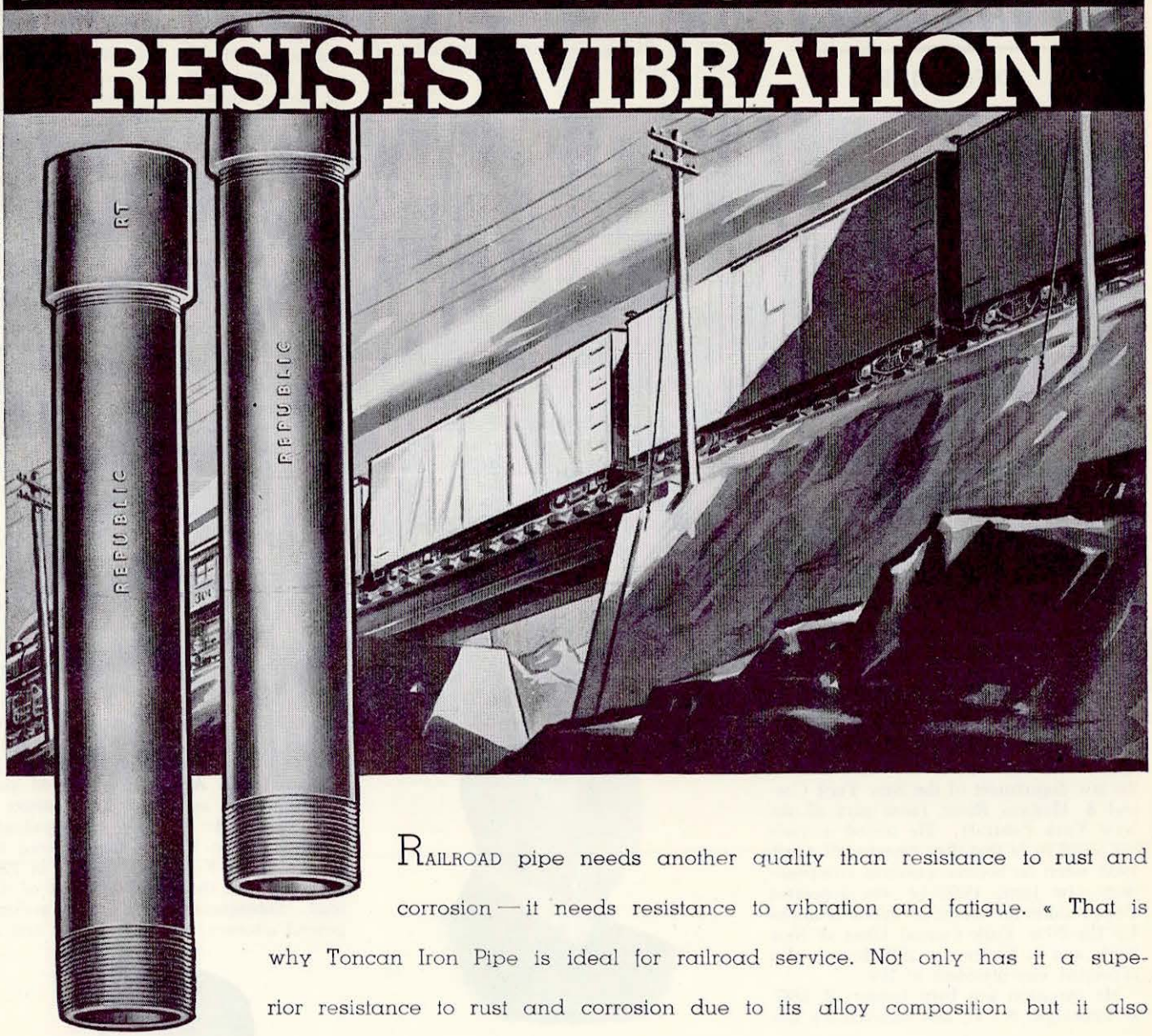
Jacksonville Terminal.....	$6,875,000	1928
Fort Wayne Union.....	105,000	1927
Wichita Falls & Southern.....	1,950,000	1927
(used)	5,150,000	
Newaukum Valley.....	410,000	1927
Middle Creek.....	16,000	1927
Missouri-Illinois	5,600,000	1927
Collins & Glenville.....	180,000	1928
Cowlitz, Chehalis & Cascade...	860,000	1927

Construction

WEST SHORE.—The New York Public Service Commission has ordered the reconstruction of the highway bridge which carries the Old Post Road over the West Shore division of the New York Central in Esopus, N. Y. The structure will be of two plate girders and seven concrete spans. The width of the embankment will be 40 ft., and will be surfaced to a width of 30 ft., with one five-foot sidewalk. The new structure which will be five feet from the existing structure will be 275 ft. long. The railroad estimated the cost of the project at $144,100 and the Department of Public Works estimated the cost at $114,600 not including land and property damages. The railroad company is to prepare the plans and do all the work.

Continued on next left-hand page

TRAIN LINE PIPE OF TONCAN IRON RESISTS VIBRATION



RAILROAD pipe needs another quality than resistance to rust and corrosion — it needs resistance to vibration and fatigue. « That is why Toncan Iron Pipe is ideal for railroad service. Not only has it a superior resistance to rust and corrosion due to its alloy composition but it also possesses exceptional fatigue resistance. « Tests prove that Toncan Iron Pipe withstands the severe service encountered by train line pipe. « This product of advanced metallurgical art gives better service wherever the going is tough. Toncan Iron Pipe begins to save trouble with its installation, for it is easy to thread, flange or bend. But the greatest benefit of Toncan Pipe can only be realized as the years go by without costly repairs and upkeep. « This alloy of copper, molybdenum and highly refined iron has an extraordinary resistance to the elements that relentlessly destroy most ferrous pipe materials. Toncan Iron is specifically manufactured to withstand the ravages of rust. Use Toncan Iron Pipe for permanence.

REPUBLIC STEEL
CORPORATION
GENERAL OFFICES YOUNGSTOWN, OHIO

TONCAN
COPPER MO-LYB DEN-UM
IRON PIPE

Railway Officers

EXECUTIVE

Charles C. Paulding, vice-president—law and public relations, of the New York Central Lines, has retired from active service because of ill health, but will continue in an advisory executive capacity. **Jacob Aronson,** general counsel, will succeed Mr. Paulding as vice-president—law.

Charles C. Paulding

Mr. Paulding was born on December 10, 1868, in New York City. He was graduated from Yale University in 1889, and entered railway service the same year in the law department of the New York Central & Hudson River (now part of the New York Central). He served in various positions in that department until April, 1920, when he became assistant vice-president. In June, 1927, he was appointed vice-president in charge of public relations for the New York Central Lines at New York, and in November, 1929, he was also appointed vice-president of law.

Mr. Aronson was born January 2, 1887, at Brooklyn, N. Y., and received his law

Jacob Aronson

degree at St. Lawrence University. He entered the service of the New York Central in 1906, and was admitted to the bar two years later. He was appointed assistant general attorney in 1922, assistant general counsel in 1926, and three years later was appointed general counsel of the New York Central Railroad.

W. G. Black, assistant vice-president of the Chesapeake & Ohio, the New York, Chicago & St. Louis and the Pere Marquette, with supervision over purchases and stores, has been appointed vice-president of these companies with headquarters as before at Cleveland, Ohio. Mr. Black will have supervision over purchases and stores in addition to such other duties as he has heretofore performed. He was born on April 19, 1877, at Lima, Ohio, and after a public school and business college education, entered railway service in 1893 as a machinist apprentice at the Stony Island (Chicago) shops of the Nickel Plate. In 1897, he left railway service to continue his education at Armour Institute of Technology, Chicago, where he took a post graduate course in mechanical subjects. He then returned to railway service as a machinist at the Burnside (Chicago) shops of the Illinois Central, and from 1900 to 1903 he was employed at the South Chicago plant of the Illinois Steel Company, then returning to the Nickel Plate as a machinist. Mr. Black was soon promoted to machine shop foreman and in 1904 he was promoted to enginehouse foreman at Ft. Wayne, Ind. On January 1, 1909, he

W. G. Black

was further promoted to master mechanic at the Stony Island shops, where he remained until February, 1923, when he became superintendent of motive power of the Nickel Plate and Lake Erie & Western districts of the Nickel Plate, with headquarters at Cleveland. On January 1, 1927, Mr. Black's jurisdiction was extended to include the entire Nickel Plate system, and in the following month he went with the Erie as mechanical assistant to the president, with headquarters at Cleveland, leaving this company in 1929 to go with the C. & O. in the same capacity. Subsequently his jurisdiction was extended to include the Pere Marquette and in 1931 he was appointed assistant vice-president of the C. & O. and the Pere Marquette with jurisdiction over purchases and stores matters. In March, 1933, he was appointed also to the same position on the Nickel Plate. His appointment as vice-president of the three roads became effective on April 17.

H. G. Powell, who has been appointed vice-president in charge of traffic of the Illinois Terminal, with headquarters at St. Louis, Mo., as noted in the *Railway Age* of April 29, was born on July 3, 1874, at Pocahontas, Ill., and entered railway service in August, 1895, as a stenographer with the Lackawanna Fast Freight Line at St. Louis. From 1896 to 1900 he served with the Chicago, Burlington & Quincy at St. Louis, and in the latter year he went with the Illinois Central as chief clerk in the traffic office at Salt Lake City, Utah. During the following 18 years Mr. Powell held various positions in the traffic department of the Illinois Central, including those of traveling freight agent, contracting agent, commercial agent and division freight agent. On February 1, 1918, he was advanced to assistant general freight agent at St. Louis, being transferred to Chicago a year later. On May 19, 1921, he was promoted to traffic manager and in 1929 his title was changed to general traffic manager, which position he continued to hold at St. Louis until his recent appointment as vice-president.

FINANCIAL, LEGAL AND ACCOUNTING

L. J. Molloy has been appointed assistant treasurer and superintendent of insurance of the Seaboard Air Line, with headquarters at Norfolk, Va., succeeding **J. L. Morecock,** deceased.

Crosby J. Beakes, assistant general counsel of the New York Central Lines, has been appointed general counsel succeeding **Jacob Aronson,** appointed vice-president—law, as announced elsewhere in this issue. Mr. Beakes was graduated from Hamilton College and entered the service of the New York Central in 1905, as assistant in the law department of that road. Subsequently he served as assistant general attorney; contract counsel and assistant general counsel, the position he held until his recent promotion as general counsel.

Crosby J. Beakes

E. E. McInnis, general solicitor of the Atchison, Topeka & Santa Fe, has been promoted to general counsel, with headquarters as before at Chicago, to succeed **Samuel T. Bledsoe,** who has been elected

Continued on next left-hand page

The NEW "AB" FREIGHT BRAKE

RELEASES QUICKLY and POSITIVELY

MEANS are provided in this new brake to insure a prompt, certain, and uniform release of all brakes throughout a train irrespective of the uncontrollable variation in slide valve friction. . . . Three factors in the new design combine to effect the desired result: (1) an emergency reservoir is provided to recharge the auxiliary reservoir during the initial stage of a release, thus conserving brake pipe air and permitting quick restoration of its pressure; (2) a simple element in the design assures that the valve will always move to release position when the brake pipe pressure is raised slightly above that in the auxiliary reservoir, even though the frictional resistance of the valve may be abnormal; (3) the well-known lap joint, circumferential-shoulder piston packing ring is used to reduce leakage to a minimum.

The improved release functioning is of immeasurably great value in reducing train delays, parted trains, overheated wheels, burned brake shoes, and slid flat wheels.

This advertisement is No. 3 of a series

WESTINGHOUSE AIR BRAKE CO.

GENERAL OFFICE AND WORKS

WILMERDING, PA.

president. **Charles H. Woods,** general attorney at Chicago, has been promoted to general solicitor to succeed Mr. McInnis. **C. E. Betts,** assistant general auditor, has been promoted to general auditor, with headquarters as before at Chicago, to succeed **John E. Baxter,** deceased. **W. E. Davis,** auditor of disbursements of the Eastern Lines, with headquarters at Topeka, Kan., has been promoted to assistant general auditor at Chicago, to succeed Mr. Betts.

OPERATING

J. W. King, freight claim agent of the Chesapeake & Ohio, has been promoted to general superintendent of transportation, with headquarters as before at Richmond, Va., to succeed **H. J. Klein,** resigned.

ENGINEERING AND SIGNALING

Benjamin W. Guppy, engineer of structures of the Boston & Maine, has also been appointed to a similar position with the Maine Central and the Portland Terminal Company. Mr. Guppy will have headquarters at Portland, Me. **W. H. Norris,** bridge engineer of the Maine Central, has been appointed assistant engineer of structures of that road and the Portland Terminal Company, with headquarters at Portland, Me., as before.

In connection with the appointment of **W. J. Backes** as chief engineer of the Maine Central in addition to his present position as chief engineer of the Boston & Maine, **Asa H. Morrill,** formerly chief engineer of the Maine Central, has been appointed assistant chief engineer of both roads and in his new position he will have jurisdiction over affairs of the engineering department of both roads in the state of Maine. Mr. Morrill's headquarters will be located at Portland, Me., as before.

MECHANICAL

G. R. Miller, master mechanic of the Pecos division of the Atchison, Topeka & Santa Fe, with headquarters at Clovis, N. M., has had his jurisdiction extended to include the Second, Third, Shattuck, Dumas, Clinton, Borger and Skellytown districts of the Plains division, with headquarters at Amarillo, Tex. **W. S. Tasker,** master mechanic of the Panhandle division, with headquarters at Wellington, Kan., has had his jurisdiction extended to include the First and Buffalo districts of the Plains division.

Several personnel changes in the mechanical departments of the Boston & Maine and the Maine Central became effective May 1. **D. C. Reid,** formerly mechanical superintendent of the Boston & Maine, has been appointed general superintendent of motive power of both railroads and **L. Richardson,** formerly chief mechanical officer, Boston & Maine, has been appointed mechanical assistant to the vice-president and general manager of that road and mechanical assistant to the general manager of the Maine Central. The positions of chief mechanical officer and mechanical superintendent, Boston & Maine, have been abolished as has the position of superintendent of motive power on the Maine Central; **H. F. Noyes,** who held the latter position, has been appointed master mechanic, Maine Central, with headquarters as before at Portland, Me. **F. W. Buckpitt,** master mechanic of the B. & M., at Boston, Mass., has been appointed superintendent of locomotive maintenance of both roads with jurisdiction over engine terminals and locomotive performance and **J. P. Jangro,** superintendent of car maintenance of the B. & M., has been appointed also to the same position on the Maine Central. **H. L. Leighton,** formerly master mechanic of the B. & M.'s Fitchburg division with headquarters at Greenfield, Mass., has been transferred to the same position on its Terminal and Portland divisions with headquarters at Boston, and **D. J. Ayers** has been appointed to succeed Mr. Leighton as master mechanic at Greenfield.

L. Richardson was born at Shelbyville, Ky., on July 11, 1889, and was educated at Cornell University (M.E. degree in 1910) and University of Illinois. He entered railroad service in 1907, as regular apprentice with the Pennsylvania in which capacity he served until 1910. Subsequently he served as special apprentice, motive power inspector, and foreman. Mr. Richardson joined the naval aviation corps during the war and during 1919-20 he served as assistant supervisor of equipment with the United States Railroad Administration. From 1921 to 1923 he was sales engineer for the American Steel Foundries Company, working on the Virginian Railway, and during 1923-24 he was in charge of railroad sales for the Whiting Corporation; during 1925 and 1926 he served as contracting engineer for the Dwight P. Robinson Company. In 1926 Mr. Richardson entered the service of the B. & M., as assistant to chairman of the executive committee and later served as assistant to president of that road. In April, 1927, he was appointed mechanical superintendent and in 1929, he became chief mechanical officer

L. Richardson

D. C. Reid was born on April 7, 1890, at Chicago, Ill., and was educated in the public schools of East Chicago, Ind. He entered railroad service in June, 1906, with the Chicago Terminal and for four years he was a machinist's apprentice on this road. He then served with the Elgin, Joliet & Eastern during 1910 and 1911, after which he became associated with the Hubbard Steel Foundry. During 1912, he was in the employ of the Goldschmidt Detinning Company, and then went with the New York Central as a machinist. Mr. Reid became assistant roundhouse foreman in October, 1917; night enginehouse foreman in November, 1917; day enginehouse foreman in December, 1920; general enginehouse foreman in October, 1922, and in July, 1926, he became master mechanic of the Indiana Harbor Belt, with headquarters at Chicago. In March, 1927, Mr. Reid entered the service of the Boston & Maine as superintendent of locomotive maintenance, and in 1929, he was appointed assistant chief mechanical officer. In the latter part of 1932 he was advanced to mechanical superintendent.

D. C. Reid

OBITUARY

C. M. Wilkinson, general agent for the Kansas City Southern, with headquarters at San Antonio, Tex., died on April 24 at San Antonio.

C. H. Wright, superintendent on the Kansas City Southern, with headquarters at Texarkana, Tex., died at that point on April 22 of apoplexy.

R. L. McKellar, foreign freight traffic manager of the Southern, died at his home in Washington, D. C., on April 26. Mr. McKellar was born at Richmond, Ala., on April 17, 1866, and had been in railroad service for 50 years. He was appointed foreign freight traffic manager of the Southern system in January, 1917, and in March, 1920, he was appointed a similar position with the Mobile & Ohio, which positions he held until his death.

THE RAILWAY & LOCOMOTIVE HISTORICAL SOCIETY, Baker Library, Boston, Mass., has issued Bulletin No. 31, a profusely illustrated pamphlet of 50 pages. Prominent articles are historical notes on the locomotives of the Boston & Maine, the Chicago & Grand Trunk, and the Minneapolis & St. Louis. A brief biographical sketch, with a portrait, of Charles Shaler Smith, designer of the well-known Kentucky River bridge of the Cincinnati Southern, and of other prominent bridges, is contributed by Mrs. Mary G. S. Cumming, daughter of Mr. Smith.

The Central Railroad Company of New Jersey

Annual Report—Year Ended December 31, 1932

New York, N. Y., April 27, 1933.

TO THE STOCKHOLDERS:

The Board of Directors herewith submits report of the operations and affairs of the Company as of December 31, 1932.

CORPORATE INCOME STATEMENT

	1932	1931	Changes
Railway Operating Revenues	$30,357,468.77	$39,441,831.36 Dec.	$9,084,362.59
Railway Operating Expenses	22,182,691.85	29,451,425.51 Dec.	7,268,733.66
Net Operating Revenue	$8,174,776.92	$9,990,405.85 Dec.	$1,815,628.93
Railway Tax Accruals	$4,857,581.13	$4,759,325.90 Inc.	$98,255.23
Hire of Eq. and Other Deductions	809,897.75	1,006,296.98 Dec.	196,399.23
Charges to Net Operating Revenues	$5,667,478.88	$5,765,622.88 Dec.	$98,144.00
Net Railway Operating Income	$2,507,298.04	$4,224,782.97 Dec.	$1,717,484.93
Non-Operating Income	1,594,104.22	1,650,759.69 Dec.	56,655.47
Gross Corp. Income	$4,101,402.26	$5,875,542.66 Dec.	$1,774,140.40
Deductions for Rentals	$2,735,568.46	$2,733,181.24 Inc.	$2,387.22
Deductions for Interest	2,773,056.37	2,786,061.91 Dec.	13,005.54
Miscellaneous Tax Accruals	405,602.19	311,307.08 Inc.	94,295.11
Other Charges	15,257.98	13,666.88 Inc.	1,591.10
Total Deductions	$5,929,485.00	$5,844,217.11 Inc.	$85,267.89
Net Income	*$1,828,082.74*	$31,325.55 Dec.	$1,859,408.29
Income Applied to Sinking and Other Reserve Funds	17,738.21	13,483.76 Inc.	4,254.45
Income Balance Transferred to Profit and Loss	*$1,845,820.95*	$17,841.79 Dec.	$1,863,662.74

Figures in Italics indicate deficit.

GENERAL REMARKS

Operations for the Year: Operating Revenues aggregated $30,357,468.77, a decrease of $9,084,362.59, or 23.03% compared with 1931. Operating Expenses were $22,182,691.85, a decrease of $7,268,733.66, or 24.68% compared with 1931.

Operating Ratios for the years 1928, 1929, 1930, 1931 and 1932, were as follows:—

Year	1928	72.62%
"	1929	72.62%
"	1930	73.74%
"	1931	74.67%
"	1932	73.07%

Freight Traffic: The decline in traffic available for transportation continued throughout the year 1932. Motor vehicle competition increased very substantially during the year, resulting in large tonnages being diverted from your railroad with further reduction in revenue. Earnest efforts continued to be made to secure adequate regulation of this form of transportation, but thus far no effective legislative action has been taken to apply any form of regulation to this unrestricted or unregulated competition. There has also been a further decline in railroad traffic due to the diversion of freight to inland water routes supported by the Government, and to the transportation of oil through pipe lines.

Merchandise revenues decreased $5,681,081.16, or 31.94% in 1932, compared with 1931. Bituminous coal revenues decreased $391,600.00, or 13.22% in 1932, compared with 1931.

Anthracite coal revenues decreased $1,044,000.00, or 11.29% in 1932, compared with 1931.

Pursuant to the order of the Interstate Commerce Commission, effective January 4, 1932, approving certain rate increases, the carriers of the country entered into what is known as the "Marshalling and Distributing Plan," under which the amounts realized from the increase in rates authorized by the Commission were loaned to The Railroad Credit Corporation. For the period ending December 31, 1932 the amounts included in income paid to The Railroad Credit Corporation aggregated $804,003.00. The plan will continue in effect to and including March, 1933.

Passenger Traffic revenues decreased $1,400,715.00, or 21.66% in 1932, as compared with 1931.

Express Revenue decreased $306,658.00, or 40.00% in 1932, compared with 1931.

Operating Expenses: Operating Expenses for December, 1932, included a charge of $250,820.00, expended during the year 1931 as an aid in reducing unemployment, for account repairs to locomotives. The equipment so repaired, was impounded, being held in white lead or storage, and the charges had been carried in the accounts as "Locomotive Repairs in Suspense," under authority of the Interstate Commerce Commission. Due to the prolonged industrial inactivity the management decided to clear this Suspense Account in the year 1932 and this amount is, therefore, included in the December 1932 current maintenance expenses.

While operating expenses generally were reduced in line with the decrease in revenue, it has not been done at the expense of safe and efficient operation.

Taxes: The taxes levied by Local, State and Federal authorities during 1932, amounted to $5,263,183.32. Of this amount $4,857,581.13 was for Railway Taxes, and $405,602.19 for Miscellaneous Taxes. The ratio of Railway Taxes to Railway Revenues was 16%, compared with 12.07% in 1931, and 9.7% in 1930. Assessments as levied, have been contested, on the ground that they are incorrect, discriminatory and illegal. Over $1,000,000.00 of the taxes paid in 1931 are now in litigation in the State and Federal Courts. A stay has been secured from the Federal Court granting relief from paying over $2,200,000.00 of the taxes assessed by New Jersey for 1932, pending the determination of their validity.

Equipment Rebuilt: Steamer "Sandy Hook" which was burned at Jersey City, N. J., in October 1931, was rebuilt and modernized and placed in regular service at the opening of the 1932 season.

R. F. C. Work Loan: In order to assist in furnishing employment, your Company arranged, during the month of October to secure a loan of not exceeding $500,000.00 for three years at 5%, from the Reconstruction Finance Corporation, to be used in repairing both marine and rolling equipment. To and including December, 1932 amounts aggregating $260,000.00 have been expended for such repairs.

Wage Reductions: Under the agreement which became effective on February 1, 1932, a 10% reduction was made in all basic wage rates for one year. In the latter part of 1932 this agreement was renewed along similar lines for a period of nine months ending with October 31, 1933.

Motor Coach and Truck Operations

Motor coach operations by the Jersey Central Transportation Company increased during the year, but with the growth of competitive companies, and the general reduction in competitive rates in many cases to a level below actual costs, the net results obtained are far from satisfactory. Until such competition is properly regulated, and its operations stabilized, this form of transportation cannot become profitable.

Motor truck operations were also extended during the year. In addition to a coordinated system of rail and highway motor transportation between the more important territories served by your Company, a joint service was established with the Reading Transportation Company in the early part of 1932. This service extends from New York and points on your line to the more important points in Pennsylvania, along the lines of the Reading Company. As in motor coach operation, competition is severe, and in the public interest must sooner or later be subjected to governmental regulation. Until proper regulation is provided, both rail and motor carriers, as well as the public, will pay the penalty of competitive warfare.

Financial Condition

During the past year outstanding securities amounting to $1,457,500.00 were retired. In the same period notes amounting to $188,801.48 were given the Reconstruction Finance Corporation covering advances on account of the Work Loan. The net decrease was $1,268,698.52, reducing the Funded Debt from $56,267,000.00 to $54,998,301.48.

During the past ten years the total Funded Debt outstanding has been reduced $1,214,198.52, notwithstanding that during the same period there were issued $12,000,000.00 Equipment Trust Certificates. Interest on Funded Debt for year 1923 was $2,940,366.00, compared with $2,702,554.00 for 1932, a decrease of $237,812.00.

Excepting certain Equipment Trust Certificates totaling $5,885,500.00 which mature by 1941, none of the Company's Funded Debt will mature before 1987.

During the past ten years $37,059,225.84 has been expended on additions and betterments to the property.

R. B. WHITE, *President.*

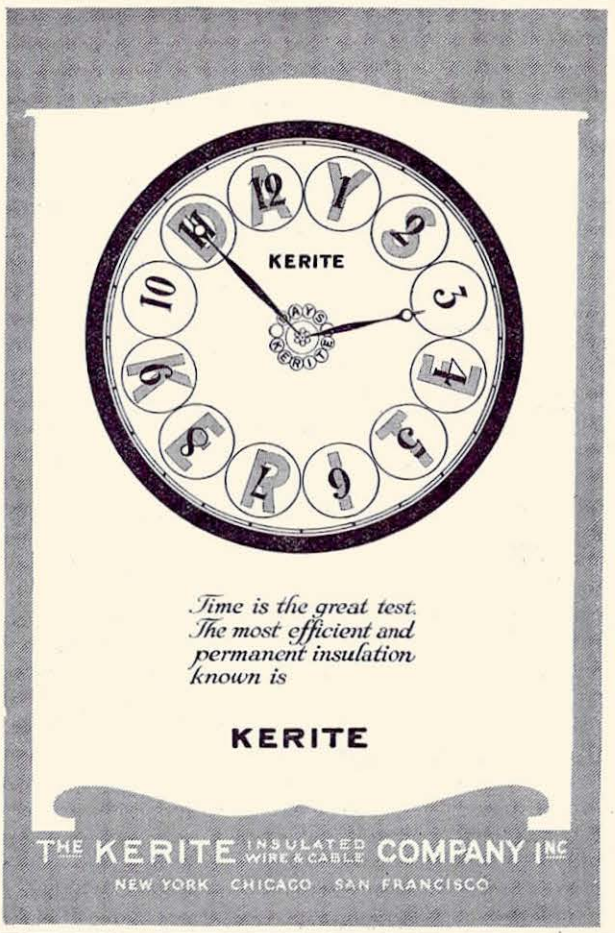
[Advertisement]

CLEVELANDERS PREFER THE CLEVELAND

—because it is Cleveland's most modern and luxurious hotel, because of its exceptional meals and genuinely interested service, and because it is convenient to every part of the city and adjoins the new Union Terminal. And travelers who know this city prefer Hotel Cleveland for the same good reasons.

Two restaurants and Coffee Shop—Rooms from $3 single, $4.50 double—Floor Clerks—Garage Service.

HOTEL CLEVELAND



Time is the great test. The most efficient and permanent insulation known is

KERITE

MAGNUS COMPANY

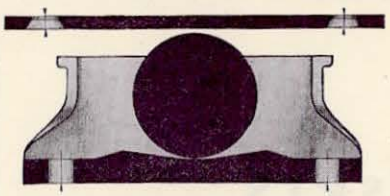
(INCORPORATED)

Journal Bearings

AND

Bronze Engine Castings

New York Chicago



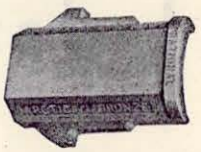
STUCKI SIDE BEARINGS
Manufactured by
A. Stucki Co.
Oliver Bldg., Pittsburgh, Pa.
Canadian Representative:
The Holden Co., Ltd.,
Montreal, Can.

This shoe does the work while your engines and cars are in service.
SAVES TIME
SAVES LABOR
SAVES MONEY

WHEEL TRUING BRAKE SHOE CO.
Detroit Michigan

"Arctic" #36 BRONZE
CAR JOURNAL BEARINGS

LONG WEAR



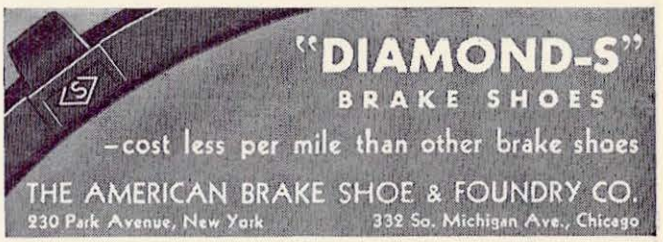
NO TROUBLE

NATIONAL BEARING METALS CORP.
ST. LOUIS, MO.
New York, N. Y. Jersey City, N. J. Pittsburgh, Pa. Meadville, Pa. Portsmouth, Va. St. Paul, Minn.
2

BARBER LATERAL - MOTION DEVICE
1,300,000 cars equipped
ROLLER SIDE-BEARINGS
STANDARD CAR TRUCK CO.
McCORMICK BUILDING CHICAGO

Pittsburgh Spring & Steel Co.
1417 Farmers Bank Building, Pittsburgh, Pa.
Makers of Elliptic and Spiral SPRINGS of Every Description
Carbon, Vanadium, Silico-Manganese Steels.
Licensed manufacturers under patents for Symington Coil-Elliptic groupings.
Washington, D. C. 324 Union Trust Bldg.
New York 2038 Grand Central Terminal
Chicago 1411 Fisher Bldg.

WINE RAILWAY APPLIANCE CO.
TOLEDO, OHIO
Details of our products appear in following issues of Railway Age during 1932
January 16—March 19—May 21—August 13—September 17—November 19—or Railway Mechanical Engineer.


"DIAMOND-S"
BRAKE SHOES
—cost less per mile than other brake shoes
THE AMERICAN BRAKE SHOE & FOUNDRY CO.
230 Park Avenue, New York
332 So. Michigan Ave., Chicago

GET TOGETHER DEPARTMENT

Non-Display "Employment" Ads five cents a word. Count address in figuring cost. Box number requires ten words. All other classified Ads $4.00 an inch (1" x 1⅝") an insertion. Payable in advance. Railway Age, 30 Church St., New York, N. Y.

Your classified advertisement should appear in this section.

POSITION OPEN

IF YOU are open to overtures for new connection, and qualified for a salary between $2,500 and $25,000, your response to this announcement is invited. The undersigned provides a thoroughly organized service of recognized standing and reputation, through which preliminaries are negotiated confidentially for positions of the calibre indicated. The procedure is individualized to each client's personal requirements; your identity covered and present position protected. Established twenty-three years. Send only name and address for details. R. W. Bixby, Inc., 102 Delward Building, Buffalo, New York.

EDUCATIONAL

THE Railway Educational Bureau, Omaha, Neb., offers a distinctive education service for Supervisors and other employes. Write for FREE Special Bulletin.

Have You Changed Your Address?

Notice of change of address of subscribers should reach the office of Railway Age, 30 Church St., New York, ten days in advance to insure delivery of the following issue to new address. In sending notification of change always include the old address as well as the new.

Name ..... Old Address .....

New Address .....

..... Position ..... Company .....

Index to Advertisers

May 6, 1933

A

American Arch Co., Inc. 19
American Brake Shoe & Foundry Co., The 25
American Locomotive Co. 21
American Steel Foundries 13
Association of Manufacturers of Chilled Car Wheels 10

B

Baldwin Locomotive Works, The 4
Barco Manufacturing Co. 27
Bixby, Inc., R. W. 25
Burroughs Adding Machine Co. 8, 9

C

Classified Advertisements 25
Cleveland Hotel Co., The 24

D

Dearborn Chemical Co. 11

E

Edgewater Steel Co. 2

F

Franklin Railway Supply Co., Inc. 18

G

Get Together Department 25

H

Harbison-Walker Refractories Co. 19
Hotel Cleveland, The 24
Hunt-Spiller Mfg. Corp. 28
Hutchins Car Roofing Co. 16

K

Kerite Insulated Wire & Cable Co. 24

L

Lima Locomotive Works, Inc. 17
Locomotive Firebox Co. 12

M

Magnus Company, Inc. 24
Miner, Inc., W. H. 3

N

National Bearing Metals Corp. 25

O

Oxweld Railroad Service Co., The 15

P

Pittsburgh Spring & Steel Co. 25
Professional Directory 25

R

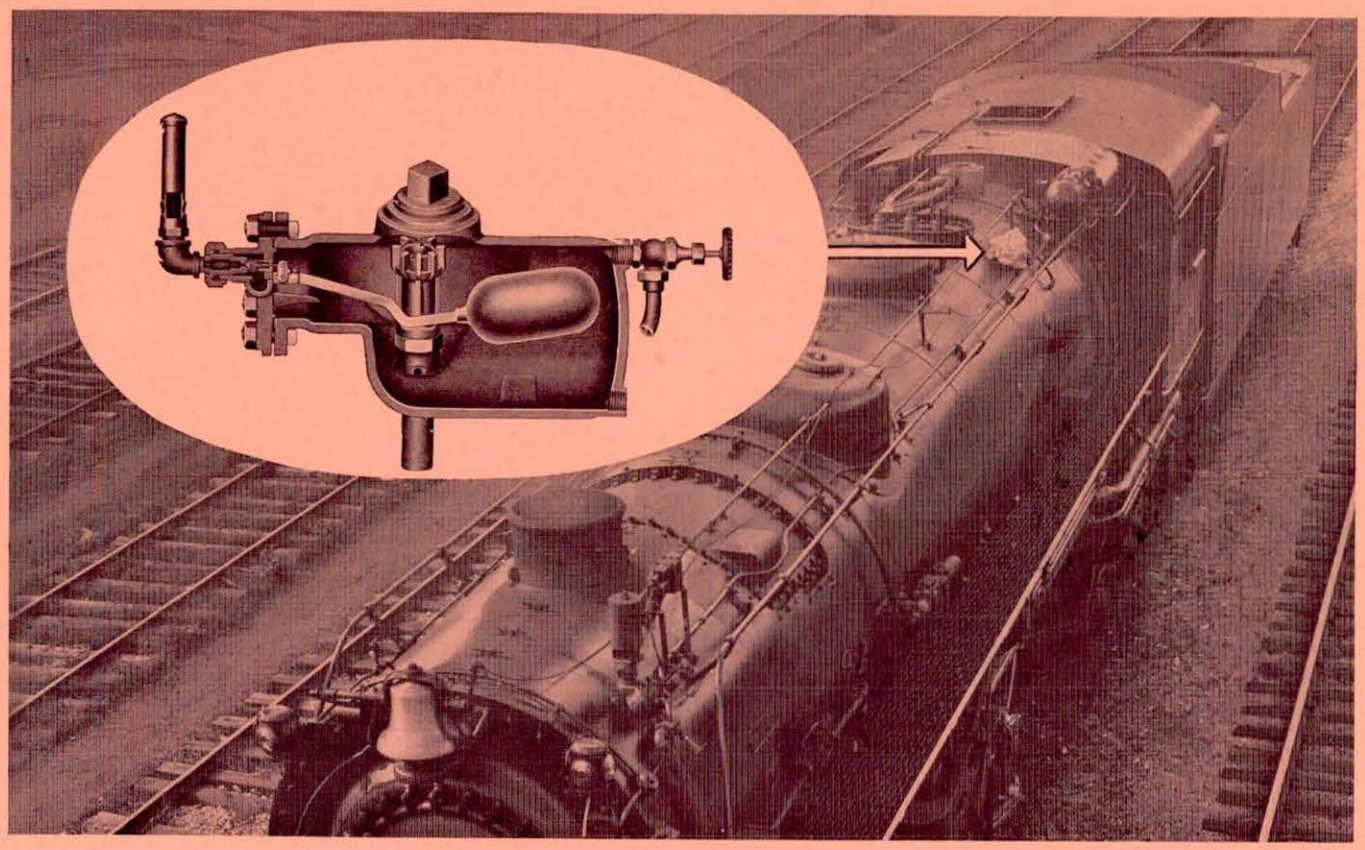
Railway Educational Bureau, The 25
Republic Steel Corp. 22

S

S. K. F. Industries, Inc. 14
Standard Car Truck Co. 25
Stucki Company, A. 25
Superheater Co., The 20

W

Westinghouse Air Brake Co. 23
Westinghouse Electric & Manufacturing Co. 6, 7
Wheel Truing Brake Shoe Co. 25
Wine Railway Appliance Co. 25



Protection Against Disaster

And Burned Crown Sheets

DAY and night — in the roundhouse — on the delivery track or pulling a train, this locomotive is under the constant and reliable protection of a BARCO Low Water Alarm.

Its presence on this locomotive and on others of the same class inspires confidence which, without question, contributes to the efficient performance and low cost of boiler maintenance in comparison to non-equipped power. Repairs caused by high water operation may be eliminated.

The BARCO Low Water Alarm may be tested at any time and any place. Its application provides the cheapest and most efficient insurance obtainable at the lowest initial cost and lowest cost of maintenance.

The low cost of this efficient insurance obtained from a device which quickly refunds the investment through substantial savings in boiler maintenance justifies the application of BARCO Low Water Alarm to all locomotives.

Barco Manufacturing Co.

1801 Winnemac Avenue, Chicago, Illinois

THE HOLDEN CO., LTD.

In Canada
Montreal—Moncton—Toronto

In Canada
Winnipeg—Vancouver

BARCO Low Water ALARM

Always Functions When Low Water Threatens

On All Types Of Power

PACIFIC, Berkshire, Mikado, Switcher or Mallet—every locomotive on the road will show more pep, consume less fuel and require less cylinder maintenance after the application of HUNT-SPILLER *Duplex* Sectional Packing.

Is your road among those that are effecting big fuel and maintenance economies through the use of this steam-tight, long-life cylinder and valve packing?

If not—why not investigate?

HSGI
Reg. U. S. Trade Mark

Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings

Parts Finished For Application

Dunbar Sectional Type Packing
Duplex Sectional Type Packing for Cylinders and Valves
(Duplex Springs for Above Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes

HUNT-SPILLER MFG. CORPORATION
J. G. Platt, Pres. & Gen. Mgr. — V. W. Ellet, Vice-President

Office & Works
383 Dorchester Ave. **South Boston, 27, Mass.**

Canadian Representative: Joseph Robb & Co., Ltd., 997 Aqueduct St., Montreal, P. Q.
Export Agent for Latin America:
International Rwy. Supply Co., 30 Church Street, New York, N. Y.

HUNT-SPILLER GUN IRON

Air Furnace